

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 165
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 291.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0
Rated speed rpm	: 300
Rack travel in mm	: 4.80
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 25.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1117
guide sleeve	
travel mm	: 10.38
Tolerance mm	: ± 0.25
Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.69
Tolerance mm	: ± 0.25
Rated speed rpm	: 746
guide sleeve	
travel mm	: 6.20
Tolerance mm	: ± 0.25
Rated speed rpm	: 353
guide sleeve	
travel mm	: 2.45
Tolerance mm	: ± 0.25
Rated speed rpm	: 403
guide sleeve	
travel mm	: 3.18
Tolerance mm	: ± 0.25
Rated speed rpm	: 450

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guide sleeve	
travel mm	: 3.66
Tolerance mm	: ± 0.25
Rated speed rpm	: 1320
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1185
Rack travel in mm	: 11.00
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1550
Del. quantity	
cm ³ /1000 strokes	: 291.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 11.00
Rated speed rpm	: 1105
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15
Rated speed rpm	: 1220

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.30
Tolerance mm : \pm 0.10

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MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 600
rack travel mm : 9.80
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 281.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 301.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.90
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.97
Test oil : ISO 4113

Combination No. : 0 402 744 802

Injection pump
Pump designation : PES4P120A320RS7312
EP type number : 0 412 724 803

Governor
Governor design. : RQ400/1200PA1132-1
Governor no. : 0 421 801 794

Cust. part No. : 51.11103-7469

Customer spec. information

Customer : MAN
Motor : D0824LFL06/LOH05
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1258
guide sleeve
travel mm : 7.48
Tolerance mm : + 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 3.62
Tolerance mm : + 0.20

Rated speed rpm : 1200
guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 472
guide sleeve
travel mm : 5.36
Tolerance mm : + 0.10

Rated speed rpm : 580

guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 1390
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 15.50
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1335
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : \pm 20

Rated speed rpm : 300

CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.65
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 140

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rack travel mm : 8.55
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 11.85
Tolerance mm : \pm 0.25

Start interlock

Rated speed rpm : $<$ 280
Rated speed rpm : $>$ 320

Check
speed 1/min : $<$ 260
Check
speed 1/min : $>$ 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 744 807

Injection pump
Pump designation : PES4P120A32ORS7380
EP type number : 0 412 724 802

Governor
Governor design. : RQV275...1200PA1232
: 1K
Governor no. : 0 421 815 552

Cust. part No. : CCEP5165 66-237

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 B4
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 95
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -10.30
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 1.50

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1272

guide sleeve
travel mm : 9.31

Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 894
guide sleeve
travel mm : 6.60
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1482

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1265

Tolerance 1/min : + 15
 rack travel mm : -8.80
 Rated speed rpm : 1410
 Tolerance 1/min : + 5
 rack travel mm : -12.30
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 253.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : -6.70
 Tolerance mm : + 0.10
 Rated speed rpm : 200
 CRT mm min. : < -4.70
 Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
 Rated speed rpm : 700
 rack travel mm : -1.15
 Tolerance mm : + 0.10
 Rated speed rpm : 350
 rack travel mm : -2.90
 Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1200
 Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -4.00
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 200
 rack travel mm : -3.40
 Tolerance mm : + 0.20
 Pressure hPa : 320
 rack travel mm : -2.75
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 155
 Rated speed rpm : < 260
 Check
 speed 1/min : > 135
 Check
 speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 240.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 161.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 strokes : + 15.0
 Check tolerance
 cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 746 602
Injection pump
Pump designation : PES6P120A32ORS7359
EP type number : 0 412 726 949
Governor
Governor design. : RQ275/1050PA1217-1
Governor no. : 0 421 801 798

Cust. part No. : CCEP 5152A 66-229

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDRO62045 R41
Power KW : 223.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Tolerance mm	: + 0.05
Del. quantity cm ³ /1000 strokes	: 281.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: -7.30
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 25.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 5.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1122
guide sleeve travel mm	: 6.36
Tolerance mm	: + 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 2.19
Tolerance mm	: + 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 408
guide sleeve travel mm	: 5.26
Tolerance mm	: + 0.10
Rated speed rpm	: 480
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10
Rated speed rpm	: 1330
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 281.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 276.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1115
Tolerance 1/min	: + 15
rack travel mm	: -9.30
Rated speed rpm	: 1240
Tolerance 1/min	: + 5

rack travel mm : -12.80
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 255.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.30
Tolerance mm : + 0.10

rack travel mm : -11.30
Rated speed rpm : 395
Tolerance 1/min : + 20

Rated speed rpm : 200
CRT mm min. : > -4.60

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : + 0.05

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.35
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 400
rack travel mm : -0.60
Tolerance mm : + 0.15

Pressure hPa : 240
rack travel mm : -1.55
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 289.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000s. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.97
Test oil : ISO 4113

Combination No. : 0 402 746 606B

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: 1K
Governor no. : 0 421 815 497

Cust. part No. : 9279607

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A3
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 179.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.10

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 43.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve

travel mm : 10.05

Tolerance mm : +- 0.15

Rated speed rpm : 350

guide sleeve

travel mm : 1.86

Tolerance mm : +- 0.20

Rated speed rpm : 749

guide sleeve

travel mm : 6.11

Tolerance mm : +- 0.25

Rated speed rpm : 480

guide sleeve

travel mm : 3.75

Tolerance mm : +- 0.25

Rated speed rpm : 1330

guide sleeve

travel mm : 13.50

Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1179

Rack travel in mm : 12.80

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : 1450

Del. quantity

cm³/1000 strokes : 179.0

Tolerance

cm³/1000 strokes : +- 1.0

Check tolerance

cm³/1000S. : +- 4.0

Spread

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.60

Rated speed rpm : 1080

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1180

Tolerance 1/min : +- 15

Rated speed rpm : 1230

LOW IDLE

control lever

position degree : 78.0

tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.10
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 8.40

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.55
Tolerance mm : ± 0.15

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : ± 0.10

Rated speed rpm : 950
rack travel mm : 12.60
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 11.90
Tolerance mm : ± 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1450
rack travel mm : 12.60
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.55
Tolerance mm : ± 0.15

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 860
rack travel mm : 12.00
Tolerance mm : ± 0.05

Pressure hPa : 710

rack travel mm : 11.20
Tolerance mm : ± 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1450
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 211.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0

Aneroid pressure
hPa : 1450
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 746 608

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ275/1050PA1275
Governor no. : 0 421 801 805

Cust. part No. : CCEP 5157A 66-222

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR062045 F/C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.95
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -5.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1122
guide sleeve
travel mm : 7.06
Tolerance mm : ± 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.44
Tolerance mm : ± 0.20

Rated speed rpm : 1050

guide sleeve
travel mm : 6.70
Tolerance mm : ± 0.10

Rated speed rpm : 648
guide sleeve
travel mm : 6.18
Tolerance mm : ± 0.10

Rated speed rpm : 375
guide sleeve
travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

Rated speed rpm : 873
guide sleeve
travel mm : 6.52
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 500

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -7.70
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 256.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.40
Tolerance mm : \pm 0.10

rack travel mm : -9.60
Rated speed rpm : 375
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $<$ -3.50

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 0.70
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 1.20
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -0.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 0.65
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 746 628
Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 966
Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5162 66-246

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIHRO62045 C41
Power KW : 217.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

A25

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.25
Tolerance mm : ± 0.75
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Tolerance mm	: + 0.05
Del. quantity cm ³ /1000 strokes	: 275.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: -6.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 30.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 5.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1117
guide sleeve travel mm	: 6.54
Tolerance mm	: + 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 2.18
Tolerance mm	: + 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 536
guide sleeve travel mm	: 5.00
Tolerance mm	: + 0.10
Rated speed rpm	: 680
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10
Rated speed rpm	: 1360
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 800
Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 275.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 274.0
tolerance degree	: + 4.0
RATED SPEED	
rack travel mm	: -1.00
Rated speed rpm	: 1110
Tolerance 1/min	: + 5
rack travel mm	: -9.00
Rated speed rpm	: 1260
Tolerance 1/min	: + 15

rack travel mm : -12.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.60
Tolerance mm : \pm 0.10

rack travel mm : -11.00
Rated speed rpm : 520
Tolerance 1/min : \pm 20

Rated speed rpm : 175
CRT mm min. : $<$ -4.30

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 360
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : -1.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.03.97
Test oil : ISO 4113
Combination No. : 0 402 746 631
Injection pump
Pump designation : PES6P130A320RS7414
EP type number : 0 412 736 810
Governor
Governor design. : RQV450...1500PA1049
Governor no. : 0 421 814 032

Cust. part No. :

Customer-spec. information
Customer : SEATEK
Motor : 64/V9
Power kW : 640.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 073
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 320.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.40

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1565
guide sleeve
travel mm : 8.24
Tolerance mm : + 0.15

Rated speed rpm : 450
guide sleeve
travel mm : 0.99
Tolerance mm : + 0.20

Rated speed rpm : 1065
guide sleeve
travel mm : 4.84
Tolerance mm : + 0.25

Rated speed rpm : 690
guide sleeve
travel mm : 2.93
Tolerance mm : + 0.25

Rated speed rpm : 1880
guide sleeve
travel mm : 11.50

Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 320.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50

Rated speed rpm : 1545

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1695

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1800

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 450
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 520

Tolerance 1/min : + 20

Rated speed rpm : 350
CRT mm min. : > 6.00

TORQUE CONTROL

Rated speed rpm : 1500
rack travel mm : 13.55
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.50
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 185
rack travel mm : 10.80
Tolerance mm : \pm 0.30

Pressure hPa : 300
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.97
Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914

Governor
Governor design. : RQ275/1050PA999-6
Governor no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 062045 M41
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 11.50
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1132
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 0.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 416
guide sleeve
travel mm : 3.44
Tolerance mm : \pm 0.10

Rated speed rpm : 560
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1350
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 274.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : -7.50
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -11.00
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 251.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.90
Tolerance mm : \pm 0.10

rack travel mm : -9.50
Rated speed rpm : 365
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $<$ -5.70

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -3.55

Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : -1.15
Tolerance mm : \pm 0.15

Pressure hPa : 320
rack travel mm : -2.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 278.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 746 994
Injection pump
Pump designation : PES6P 20A320RS7344
EP type number : 0 412 723 914
Governor
Governor design. : RQV275...1000PA1161
Governor no. : 0 421 814 100

Cust. part No. : CCEP 5143A 66-231

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062045 E/41
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.c.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery difference
betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1086
guide sleeve
travel mm : 8.09
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.66
Tolerance mm : \pm 0.25

Rated speed rpm : 793

guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.25

Rated speed rpm : 343
guide sleeve
travel mm : 2.33
Tolerance mm : \pm 0.25

Rated speed rpm : 393
guide sleeve
travel mm : 2.95
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.72
Tolerance mm : \pm 0.25

Rated speed rpm : 1410
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1235

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : -8.60
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 200
CRT mm max. : $<$ -5.60
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 600
Rated speed rpm : 1000
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -3.35
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 320

B10

rack travel mm : -2.65
Tolerance mm : \pm 0.15

Pressure hPa : 640
rack travel mm : -0.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 281.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.97
Test oil : ISO 4113
Combination No. : 0 402 746 995
Injection pump
Pump designation : PES6P120A320RS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160K
Governor no. : 0 421 815 420

Cust. part No. : CCEP 5144A 66-232

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062356 A/41
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1103
guide sleeve
travel mm : 8.70
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.32
Tolerance mm : \pm 0.25

Rated speed rpm : 823
guide sleeve
travel mm : 5.92
Tolerance mm : \pm 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.43
Tolerance mm : \pm 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.98
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.66
Tolerance mm : \pm 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position, degree : - 1
Rated speed rpm : 1300

Rack travel in mm : 11.60
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Anseroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

rack travel mm : -8.80
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.30
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.70

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -3.90
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 1000
Pressure hPa : 320
rack travel mm : -2.80
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 381.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 010

Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021

Governor
Governor design. : RQV275...1175PA1101K
Governor no. : 0 421 815 982

Cust. part No. : CCEP 5133 A 66-193

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 060226 M51
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 12.30
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 13.70
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1175

Del. quantity
cm³/1000 strokes : 268.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 42.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1230
guide sleeve
travel mm : 8.95
Tolerance mm : + 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.01
Tolerance mm : + 0.10

Rated speed rpm : 877
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.20

Rated speed rpm : 389
guide sleeve
travel mm : 2.39
Tolerance mm : + 0.20

Rated speed rpm : 439
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : + 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 11.20
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 268.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

rack travel mm : -9.70
Rated speed rpm : 1430
Tolerance 1/min : \pm 5

rack travel mm : -13.20
Tolerance mm : \pm 0.55
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.30
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.40

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 650
rack travel mm : -1.55
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -2.80
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1175
Pressure hPa : 1600

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -5.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1175

Pressure hPa : 320
rack travel mm : -4.70
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : -2.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 946 011
Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021
Governor
Governor design. : RQV275...1250PA1125K
Governor no. : 0 421 815 981

Cust. part No. : CCEP 5140A 66-205

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.02.26L51
Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.00
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Rated speed rpm : 325

Rack travel in mm : -6.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 41.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1355
guide sleeve
travel mm : 10.10

Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.00

Tolerance mm : \pm 0.15

Rated speed rpm : 929
guide sleeve
travel mm : 6.80

Tolerance mm : \pm 0.20

Rated speed rpm : 390
guide sleeve
travel mm : 2.39

Tolerance mm : \pm 0.20

Rated speed rpm : 440
guide sleeve
travel mm : 3.01

Tolerance mm : \pm 0.20

Rated speed rpm : 550

guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50

Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1430

Rack travel in mm : 10.90

Tolerance mm : \pm 2.00

CONTROL LEVER

control lever
position degree : 296.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1330

Tolerance 1/min : \pm 15

rack travel mm : -8.60

Rated speed rpm : 1470

Tolerance 1/min : \pm 5

rack travel mm : -12.10

Tolerance mm : \pm 0.55

Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 244.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325

rack travel mm : -6.60

Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : < -5.20

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650
rack travel mm : -1.10
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1600
Tolerance mm : + 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -4.30
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250
Pressure hPa : 200
rack travel mm : -3.70
Tolerance mm : + 0.20

Pressure hPa : 360
rack travel mm : -2.60
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650

Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 946 012
Injection pump
Pump designation : PES6P120A320RS8031
EP type number : 0 412 926 022
Governor
Governor design. : RQV300...1000PA1181K
Governor no. : 0 421 815 975

Cust. part No. : CCEP 5145A 66-234

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 063540 P 41
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.17
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery difference
betw. rack trav.
mm : 21.00
and maximum rack
travel : 19.50
Difference ° CS : 2.50

CRT ZERO POSITION

Rack travel in mm : 13.30
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 360.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1082
guide sleeve
travel mm : 9.30
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.47

Tolerance mm : + 0.25

Rated speed rpm : 797
guide sleeve
travel mm : 6.08
Tolerance mm : + 0.25

Rated speed rpm : 383
guide sleeve
travel mm : 2.42
Tolerance mm : + 0.25

Rated speed rpm : 433
guide sleeve
travel mm : 2.89
Tolerance mm : + 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.71
Tolerance mm : + 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1220

Rack travel in mm : 12.00
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1400
Del. quantity
cm³/1000 strokes : 360.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

rack travel mm : -9.30
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.80
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.00

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.55
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : -0.35
Tolerance mm : \pm 0.20

Rated speed rpm : 350
rack travel mm : -1.80
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1400
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -5.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 280
rack travel mm : -4.50
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : -3.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 390.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 013

Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021

Governor
Governor design. : RQV275...1250PA1189K
Governor no. : 0 421 815 974

Cust. part No. : CCEP 5146A 66-220

Customer spec. information

Customer : RENAULT V.I.
Motor : MIDR 06.02.26Y41
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference * CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 14.50
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 45.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1332
guide sleeve
travel mm : 10.07
Tolerance mm : \pm 0.25

Rated speed rpm : 275
guide sleeve
travel mm : 1.10

Tolerance mm : \pm 0.25

Rated speed rpm : 912
guide sleeve
travel mm : 6.79
Tolerance mm : \pm 0.25

Rated speed rpm : 412
guide sleeve
travel mm : 2.53
Tolerance mm : \pm 0.25

Rated speed rpm : 462
guide sleeve
travel mm : 3.16
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.97
Tolerance mm : \pm 0.25

Rated speed rpm : 1630
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 13.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 303.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : \pm 15

rack travel mm : -10.40
Rated speed rpm : 1480
Tolerance 1/min : \pm 5

rack travel mm : -13.90
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 250.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm max. : $<$ -6.90

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 800
rack travel mm : -0.85
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -4.10
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1600
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -4.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 240
rack travel mm : -3.60
Tolerance mm : \pm 0.20

Pressure hPa : 480
rack travel mm : -1.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 027

Injection pump
Pump designation : PES6P120A320RS8047
EP type number : 0 412 926 029

Governor
Governor design. : RQV275...1250PA1312K
Governor no. : 0 421 815 966

Cust. part No. : CCEP 5160 66-244

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06.02.26L71
Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 3.25

CRT ZERO POSITION

Rack travel in mm : 12.10
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 185.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1340
guide sleeve
travel mm : 9.96
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 923
guide sleeve
travel mm : 6.76
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 11.10
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1325

Tolerance 1/min : + 15
rack travel mm : -8.10
Rated speed rpm : 1465
Tolerance 1/min : + 5

rack travel mm : -11.60
Tolerance mm : + 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 241.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -7.50
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : < -6.10

Rated speed rpm : 325
rack travel mm : > 6.10

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650
rack travel mm : -2.10
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -3.25
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1600
Tolerance mm : + 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -4.60

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 250
rack travel mm : -3.70
Tolerance mm : + 0.20

Pressure hPa : 700
rack travel mm : -0.60
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 174.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 946 028

Injection pump
Pump designation : PES6P120A320RS8047
EP type number : 0 412 926 029

Governor
Governor design. : RQV275...1175PA1312
: 1K
Governor no. : 0 421 815 965

Cust. part No. : CCEP 5161 66-245

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 060226 M71
Power Kw : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 140
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

C07

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 3.25

CRT ZERO POSITION

Rack travel in mm : 13.30
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1175

Del. quantity
cm³/1000 strokes : 269.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1270
guide sleeve

travel mm : 9.30
Tolerance mm : \pm 0.15

C08

Rated speed rpm : 275
guide sleeve
travel mm : 0.98
Tolerance mm : \pm 0.20

Rated speed rpm : 893
guide sleeve
travel mm : 6.60
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 12.20
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 269.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 294.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1255
 Tolerance 1/min : + 15

rack travel mm : -9.20
 Rated speed rpm : 1431
 Tolerance 1/min : + 5

rack travel mm : -12.85
 Tolerance mm : + 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
 position degree : 243.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -7.20
 Tolerance mm : + 0.10

Rated speed rpm : 200
 CRT mm max. : > -6.50
 Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 650
 rack travel mm : -1.75
 Tolerance mm : + 0.10

Rated speed rpm : 350
 rack travel mm : -3.00
 Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1175
 Pressure hPa : 1600

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -5.60
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1175

Pressure hPa : 320
 rack travel mm : -4.00
 Tolerance mm : + 0.20

Pressure hPa : 560
 rack travel mm : -2.40
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
 Rated speed rpm : < 240

Check
 speed 1/min : > 155
 Check
 speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1600
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 254.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 142.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 87.0
 Tolerance
 cm³/1000 strokes : + 10.0
 Check tolerance
 cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97

Test oil : ISO 4113

Combination No. : 9 400 083 422

Injection pump
Pump designation : PES3A80D320/3RS1264
EP type number : 9 400 083 053

Governor
Governor design. : RSV350...1200A2C627R
Governor no. : 9 420 083 288

Cust. part No. :

Customer-spec. information

Customer : MWM

Motor : D225-3

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.45
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 51.0

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000s. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 9.0

Tolerance

cm³/1000 strokes : ± 1.5

Check tolerance

cm³/1000S. : ± 3.5

Speed

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

governor spring

pre-tension

click setting x : 4.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 51.0

Tolerance

cm³/1000 strokes : ± 0.5

Check tolerance

cm³/1000S. : ± 2.0

Speed

Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever

position degree : 50.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.40

Rated speed rpm : 1245

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1300

Tolerance 1/min : ± 15

rack travel mm : 0.35

Tolerance mm : ± 0.55

Rated speed rpm : 1400

LOW IDLE

control lever

position degree : 20.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.50

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350

rack travel mm : 6.00

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 520

Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm : 9.45

Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 9.50
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 423

Injection pump
Pump designation : PES3A80D320/3RS1264
EP type number : 9 400 083 053

Governor
Governor design. : RSV350...900A7C627R
Governor no. : 9 420 083 264

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D225-3

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 52.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 9.5

Tolerance
cm3/1000 strokes : \pm 1.5

Check tolerance
cm3/1000S. : \pm 3.5

Speed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 2.0

Speed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1100

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940
rack travel mm : 9.20

Rated speed rpm : 969
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 941
rack travel mm : 9.20

Rated speed rpm : 970
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 942
rack travel mm : 9.20

Rated speed rpm : 971
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 943
rack travel mm : 9.20

Rated speed rpm : 972
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 944
rack travel mm : 9.20

Rated speed rpm : 973
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 945

rack travel mm : 9.20
Rated speed rpm : 974
Tolerance 1/min : \pm 4
rack travel mm : 4.00

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 11.20
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00

Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 9.5
Tolerance
cm3/1000 strokes : \pm 1.5
Check tolerance
cm3/1000s. : \pm 3.5
Speed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 426

Injection pump
Pump designation : PES4A80D320/3RS1265
EP type number : 9 400 083 055

Governor
Governor design. : RSV350...1200A2C627R
Governor no. : 9 420 083 288

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D225-4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

C17

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 51.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 9.0

Tolerance
cm3/1000 strokes : + 1.5

Check tolerance
cm3/1000S. : + 3.5

Spread
Tolerance

cm3/1000 strokes : 4.0
Check tolerance

cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure

hPa : -
Del. quantity

cm3/1000 strokes : 51.0
Tolerance

cm3/1000 strokes : + 0.5
Check tolerance

cm3/1000S. : + 2.0
Spread

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 8.40
Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : + 15

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 9.45
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 9.50
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 427

Injection pump
Pump designation : PES4A80D320/3RS1265
EP type number : 9 400 083 055

Governor
Governor design. : RSV350...900A7C627R
Governor no. : 9 420 083 264

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D225-4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

C20

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 52.0

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 52.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spreed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940
rack travel mm : 9.20

Rated speed rpm : 969
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 941
rack travel mm : 9.20

Rated speed rpm : 970
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 942
rack travel mm : 9.20

Rated speed rpm : 971
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 943
rack travel mm : 9.20

Rated speed rpm : 972
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 944
rack travel mm : 9.20

Rated speed rpm : 973
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1100

Rated speed rpm : 945
rack travel mm : 9.20

Rated speed rpm : 974
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 11.20
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 429

Injection pump
Pump designation : PES6A80D320/3RS1261
EP type number : 9 400 083 057

Governor
Governor design. : RSV350...900A7C627R
Governor no. : 9 420 083 264

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D225-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 52.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 52.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940
rack travel mm : 9.20

Rated speed rpm : 969
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 941
rack travel mm : 9.20

Rated speed rpm : 970
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

Rated speed rpm : 942
rack travel mm : 9.20

Rated speed rpm : 971
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 943
rack travel mm : 9.20

Rated speed rpm : 972
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 944
rack travel mm : 9.20

Rated speed rpm : 973
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 945
rack travel mm : 9.20

Rated speed rpm : 974
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting points w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 11.20
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 430

Injection pump
Pump designation : PES6A80D320/3RS1261
EP type number : 9 400 083 057

Governor
Governor design. : RSV350...1200A2C627R
Governor no. : 9 420 083 288

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D225-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

C26

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 51.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : + 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800
Rack travel in mm : 0.65

governor spring
pre-tension
click setting x : 4.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 51.0
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 50.0
tolerance degree : + 4.0

RATED SPEED

C27

rack travel mm : 8.40
Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 20.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 520
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 9.45
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 9.50
Tolerance mm : + 0.10

Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113
Combination No. : 9 400 083 449
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100A2C2209
: R
Governor no. : 9 420 083 201
Cust. part No. : 3352891

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3 L

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

D01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.15

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 88.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.10

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 88.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 89.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.10

Rated speed rpm : 1145

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : \pm 15

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 4.60

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450

rack travel mm : 5.10

Tolerance mm : \pm 0.10

rack travel mm : 2.00

Rated speed rpm : 585

Tolerance 1/min : + 30
Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.15
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 10.20
Tolerance mm : + 0.10

Rated speed rpm : 400
rack travel mm : 10.75
Tolerance mm : + 0.25

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 74.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 142.0
Tolerance
cm3/1000 strokes : + 8.0
Check tolerance
cm3/1000S. : + 11.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 12.5

D03

Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Speed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113
Combination No. : 9 400 083 451
Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1100AB1218R
Governor no. : 9 420 080 214

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT/8.3 1
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

DD4

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.90
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 800
guide sleeve
travel mm : 5.75
Tolerance mm : ± 0.15

Rated speed rpm : 1100
guide sleeve
travel mm : 8.45
Tolerance mm : ± 0.05

Rated speed rpm : 350
guide sleeve
travel mm : 2.40
Tolerance mm : ± 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 4.05
Tolerance mm : ± 0.15

GUIDE SLEEVE POSITION

control lever
position degree : - 1

D05

Rated speed rpm : 1090

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : 800

Del. quantity
cm³/1000 strokes : 118.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : ± 4.0

control lever
position degree : 118.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1370

LOW IDLE

control lever
position degree : 71.0
tolerance degree : ± 4.0

control lever
position degree : 15.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.95
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 0.40
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : 1.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 133.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 129.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113
Combination No. : 9 400 083 452
Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1250AB1225R
Governor no. : 9 420 080 224

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 C 8.3L
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 000
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

D08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference °CS : 3.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.25

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.40

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350

guide sleeve
travel mm : 2.05
Tolerance mm : \pm 0.25

Rated speed rpm : 1265

guide sleeve
travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 900

guide sleeve
travel mm : 5.75
Tolerance mm : \pm 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 3.95

Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1250

Rack travel in mm : 16.50

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 117.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.20

Rated speed rpm : 1295

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1405

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.80

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 11.45
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 20.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 454

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...900A7C2209
: 1R
Governor no. : 9 420 083 232

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.75

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 129.5
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance cm3/1000S.	: 8.0
<hr/>	

Rated speed rpm	: 400
Rack travel in mm	: 5.70
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
Spreed	
Tolerance cm3/1000 strokes	: 5.5
Check tolerance cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.65
Tolerance mm	: ± 0.35
<hr/>	
governor spring pre-tension click setting x	: 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 129.5
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 8.0

CONTROL LEVER

control lever position degree	: 108.0
tolerance degree	: ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 943
rack travel mm	: 11.70
<hr/>	
Rated speed rpm	: 979
Tolerance 1/min	: ± 2
rack travel mm	: 4.00
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1100

Rated speed rpm	: 944
rack travel mm	: 11.70

Rated speed rpm	: 980
Tolerance 1/min	: ± 2
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1100

Rated speed rpm	: 945
rack travel mm	: 11.70

Rated speed rpm	: 981
Tolerance 1/min	: ± 2
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1100

Rated speed rpm : 946
rack travel mm : 11.70

Rated speed rpm : 982
Tolerance 1/min : + 2
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 947
rack travel mm : 11.70

Rated speed rpm : 983
Tolerance 1/min : + 2
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 948
rack travel mm : 11.70

Rated speed rpm : 934
Tolerance 1/min : + 2
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 440
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 12.80
Tolerance mm : + 0.10

Rated speed rpm : 400
rack travel mm : 14.30
Tolerance mm : + 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : + 8.0
Check tolerance
cm³/1000s. : + 11.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 456

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...900A7C2209
: 2R
Governor no. : 9 420 083 237

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 C 8.3 L
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 922 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 101.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

<hr/>	
Speed	
<hr/>	
Tolerance	
cm ³ /1000 strokes :	3.5
<hr/>	
Check tolerance	
cm ³ /1000S. :	8.0
<hr/>	
Rated speed rpm :	400
Rack travel in mm :	6.00
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	18.5
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S. :	+ 4.5
Speed	
Tolerance	
cm ³ /1000 strokes :	5.5
Check tolerance	
cm ³ /1000S. :	9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	900
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	101.5
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 3.0
Speed	

Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	57.0
tolerance degree :	+ 4.0

control lever	
position degree :	107.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	10.20
Rated speed rpm :	948
Tolerance 1/min :	+ 3

rack travel mm :	4.00
Rated speed rpm :	975
Tolerance 1/min :	+ 5

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1100

LOW IDLE

control lever	
position degree :	77.0
tolerance degree :	+ 4.0

control lever	
position degree :	27.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	5.50
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm :	400
rack travel mm :	6.00
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	440
Tolerance 1/min :	+ 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 12.50
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 458

Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028

Governor
Governor design. : RQV350...1100AB1218
: 1R
Governor no. : 9 420 080 302

Cust. part No. : 3354617

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT
Power KW : 156.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.65
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 118.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spread

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.90
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 15.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spread

Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1400
guide sleeve
travel mm : 8.95
Tolerance mm : + 0.25

Rated speed rpm : 1150
guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.65
Tolerance mm : + 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.45
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1315

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 118.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.0
Spread
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 56.0
tolerance degree : + 4.0

control lever
position degree : 111.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1160
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

control lever
position degree : 16.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.95
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 0.40
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : 1.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 130.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 083 459
Injection pump
Pump designation : PES6A95D120RS2822
EP type number : 9 400 084 029
Governor
Governor design. : RQV350...1250AB1235
: 2R
Governor no. : 9 420 080 311
Cust. part No. : 3355394

Customer-spec. information
Customer : CUMMINS
Motor : 6 BT
Power KW : 119.3

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

D22

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.80
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : + 0.10
Check
tolerance *NW : + 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference * CS : 2.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.75

Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1550

guide sleeve
travel mm : 8.55

Tolerance mm : + 0.25

Rated speed rpm : 1300

guide sleeve
travel mm : 6.85

Tolerance mm : + 0.05

Rated speed rpm : 350

guide sleeve
travel mm : 1.45

Tolerance mm : + 0.25

Rated speed rpm : 700

guide sleeve
travel mm : 4.25

Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1530

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 56.0

tolerance degree : + 4.0

control lever
position degree : 111.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1315

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1560

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1750

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

control lever
position degree : 14.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 8.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 12.75
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 12.75
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 410
rack travel mm : 0.70
Tolerance mm : + 0.10

Pressure hPa : 320

rack travel mm : 0.15
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : + 8.0
Check tolerance
cm³/1000s. : + 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97

Test oil : ISO 4113

Combination No. : 9 400 083 460

Injection pump

Pump designation : PES6A100D320/3RS2827

EP type number : 9 400 084 030

Governor

Governer design. : RQV350...1200AB1267R

Governer no. : 9 420 080 319

Cust. part No. :

Customer-spec. information

Customer : CUMMINS

Motor : 6 CTAA-8.3L

Power KW : 179.1

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 0 681 343 009

Opening pressure
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.75

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack

travel : 10.50

Tolerance mm : ± 1.50

Difference ° CS : 4.00

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.45

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 121.5

Tolerance

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.0

Spreed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 4.80

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 12.0

Tolerance

cm³/1000 strokes : + 2.0

Check tolerance

cm³/1000S. : + 4.5

Spreed

Tolerance

cm³/1000 strokes : 5.5

Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000

guide sleeve

travel mm : 6.15

Tolerance mm : + 0.25

Rated speed rpm : 1250

guide sleeve

travel mm : 8.90

Tolerance mm : + 0.10

Rated speed rpm : 350

guide sleeve

travel mm : 1.65

Tolerance mm : + 0.25

Rated speed rpm : 550

guide sleeve

travel mm : 3.25

Tolerance mm : + 0.25

Rated speed rpm : 1320

guide sleeve

travel mm : 9.85

Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1220

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 121.5

Tolerance

cm³/1000 strokes : + 2.0

Check tolerance

cm³/1000S. : + 4.0

Spreed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 66.0

tolerance degree : + 4.0

control lever

position degree : 122.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40

Rated speed rpm : 1245

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1320

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 11.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590

rack travel mm : 1.70
Tolerance mm : \pm 0.10

Pressure hPa : 370
rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 135.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 083 462

Injection pump
Pump designation : PES6A100D320/3RS2691
: -5
EP type number : 9 400 084 031

Governor
Governor design. : RSV400...900A7C2209
: 3R
Governor no. : 9 420 083 262

Cust. part No. : 3354950

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3 L
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 860

Rack travel in mm : 13.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 142.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 400

Rack travel in mm : 5.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 860
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 142.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 928
rack travel mm : 12.30

Rated speed rpm : 977
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 929
rack travel mm : 12.30

Rated speed rpm : 978
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 930
rack travel mm : 12.30

Rated speed rpm : 979
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 931
rack travel mm : 12.30

Rated speed rpm : 980
Tolerance 1/min : + 4

rack travel mm : 4.00
rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 932
rack travel mm : 12.30

Rated speed rpm : 981
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

rack travel mm : 12.30

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 445
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 860
rack travel mm : 13.35
Tolerance mm : + 0.05

E04

Rated speed rpm : 600
rack travel mm : 13.40
Tolerance mm : + 0.10

Rated speed rpm : 450
rack travel mm : 14.00
Tolerance mm : + 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + 8.0
Check tolerance
cm3/1000S. : + 11.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 083 463
Injection pump
Pump designation : PES6A95D120RS2834
EP type number : 9 400 084 032
Governor
Governor design. : RSV400...1100A8C2259
: -1R
Governor no. : 9 420 083 261
Cust. part No. : 3355079

Customer-spec. information
Customer : CUMMINS
Motor : 6BT 5.9 L
Power KW : 108.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

E05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23
Barrel no. : 1
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 2.50

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 10.95

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 85.0
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 3.0
<hr/>	
Spread	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance cm ³ /1000S.	: 8.0
<hr/>	

Rated speed rpm	: 400
<hr/>	
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 11.0
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Spread	
Tolerance cm ³ /1000 strokes	: 5.5
Check tolerance cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.65
Tolerance mm	: ± 0.35
<hr/>	
governor spring pre-tension click setting x	: 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 85.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Spread	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 8.0

CONTROL LEVER

control lever position degree	: 101.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 9.90
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

LOW IDLE

control lever position degree	: 71.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 4.60
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm	: 400
rack travel mm	: 5.10
Tolerance mm	: ± 0.10
<hr/>	
rack travel mm	: 2.00
Rated speed rpm	: 520

Tolerance 1/min : + 30
Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.95
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 11.55
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 11.25
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 93.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 86.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 strokes : + 10.0

Check tolerance
cm3/1000S. : + 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Speed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 223
Injection pump
Pump designation : PES3A80D32ORS1281
EP type number : 9 400 083 054
Governor
Governor design. : RSV350...1400A2C2129
: -3R
Governor no. : 9 420 083 265
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-3

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 3

Phasing : 0-120-240
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0

Spread

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm3/1000 strokes : \pm 1.5

Check tolerance
cm3/1000S. : \pm 3.5

Spread
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 55.0

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 2.0

Spread

Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 8.90
Rated speed rpm : 1445
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1510
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 670
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.70
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 10.35
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 224
Injection pump
Pump designation : PES6A90D320RS2605
EP type number : 9 400 083 078
Governor
Governor design. : RSV350...1050A1C2029
: -2R
Governor no. : 9 420 083 266
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 8.25
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 53.5
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000S. : ± 2.5

Spreed	
Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	7.0
Rated speed rpm : 350	
Rack travel in mm :	6.50
Tolerance mm : +	0.10
Del. quantity	
cm3/1000 strokes :	9.5
Tolerance	
cm3/1000 strokes : +	2.0
Check tolerance	
cm3/1000S. : +	4.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.5
Check tolerance	
cm3/1000S. :	7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm : 0.65	
Tolerance mm : +	0.35
governor spring	
pre-tension	
click setting x :	6.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1050
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	53.5
Tolerance	
cm3/1000 strokes : +	0.5
Check tolerance	
cm3/1000S. : +	2.5
Spreed	

E12

Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	7.0

CONTROL LEVER

control lever	
position degree :	62.0
tolerance degree : +	4.0

control lever	
position degree :	112.0
tolerance degree : +	4.0

RATED SPEED

rack travel mm :	7.20
Rated speed rpm :	1075
Tolerance 1/min : +	5

rack travel mm :	4.00
Rated speed rpm :	1105
Tolerance 1/min : +	15

rack travel mm :	1.00
Tolerance mm : +	0.70
Rated speed rpm :	1250

LOW IDLE

control lever	
position degree :	83.0
tolerance degree : +	4.0

control lever	
position degree :	33.0
tolerance degree : +	4.0

Setting point w/out bumper spring

Rated speed rpm :	350
rack travel mm :	6.00
Tolerance mm : +	0.10

Testing:

Rated speed rpm :	350
rack travel mm :	6.50
Tolerance mm : +	0.10

rack travel mm :	2.00
Rated speed rpm :	555
Tolerance 1/min : +	30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 8.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 9.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 9.00
Tolerance mm : \pm 0.10

Rated speed rpm : 875
rack travel mm : 8.55
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 239
Injection pump
Pump designation : PES6A90D320RS2701
EP type number : 9 400 083 094
Governor
Governor design. : RSV350...1150A2C2097
 : -1R
Governor no. : 9 420 083 267
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD229-6
Power KW : 106.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 10.85
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 81.5
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000S. : ± 2.5

Spread

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 11.5

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread

Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 81.5

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 2.5

Spread

E15

Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.80
Rated speed rpm : 1200
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : \pm 15

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 10.85
 Tolerance mm : \pm 0.05

 Rated speed rpm : 500
 rack travel mm : 11.45
 Tolerance mm : \pm 0.05

 Rated speed rpm : 750
 rack travel mm : 11.25
 Tolerance mm : \pm 0.05

 Rated speed rpm : 850
 rack travel mm : 11.05
 Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.5

Aneroid pressure
 hPa : -
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 79.0
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.00
 Tolerance mm : \pm 1.00
 Del. quantity
 cm³/1000 strokes : 147.0
 Tolerance
 cm³/1000 strokes : \pm 8.0
 Check tolerance
 cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 11.5
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 240

Injection pump
Pump designation : PES4A90D320RS2702
EP type number : 9 400 083 095

Governor
Governor design. : RSV350...1150A2C2129
: -4R
Governor no. : 9 420 083 268

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-4
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

E17

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 9.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 64.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 350

Rack travel in mm : 5.70

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 64.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 49.0
tolerance degree : ± 4.0

control lever
position degree : 99.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.00
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 24.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 9.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 9.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 9.25
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 241
Injection pump
Pump designation : PES3A90D320RS2703
EP type number : 9 400 083 096
Governor
Governor design. : RSV350...1150A2C2129
: -4R
Governor no. : 9 420 083 268
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-3
Power KW : 42.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Spreed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 350

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 58.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spreed

Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.50
Rated speed rpm : 1125
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 9.45
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 9.00
Tolerance mm : + 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 61.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0
Speed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 243

Injection pump
Pump designation : PES4A80D320RS1282-1
EP type number : 9 400 083 097

Governor
Governor design. : RS350/1500A2C2073
Governor no. : 9 420 083 269

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 9.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.10

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Speed
Tolerance

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 8.20
Rated speed rpm : 1585
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1640
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1800

LOW IDLE

control lever
position degree : 60.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.10
Tolerance mm : ± 0.10

rack travel mm : 4.00
Rated speed rpm : 460
Tolerance 1/min : ± 30

Rated speed rpm : 250

CRT mm min. : > 6.80

Rated speed rpm : 550

CRT mm max. : < 3.20

TORQUE CONTROL

Rated speed rpm : 1500
rack travel mm : 9.25
Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 10.65
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 10.30
Tolerance mm : + 0.10

Rated speed rpm : 1200
rack travel mm : 9.65
Tolerance mm : + 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00

LOW IDLE

E25

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 254

Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031

Governor
Governor design. : RSV500...900A0B2211
: 1L
Governor no. : 9 420 033 204

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 352 (A)

TEST BENCH REQUIREMENTS

Inlet line : 2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 10.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 57.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 500
Rack travel in mm : 6.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : + 0.35
governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.00
Rated speed rpm : 908
Tolerance 1/min : + 3

rack travel mm : 4.00
Rated speed rpm : 953
Tolerance 1/min : + 3

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 6.00
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 6.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 880
rack travel mm : 10.05
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.10

Tolerance mm : \pm 0.10
Rated speed rpm : 400
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.50
Tolerance mm : \pm 0.30

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 255

Injection pump
Pump designation : PES5A80D410RS2526
EP type number : 9 400 093 007

Governor
Governor design. : RS325/1400A0C2212L
Governor no. : 9 420 083 295

Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : F5L913

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 66.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1445
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1515
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 6.00
Rated speed rpm : 420
Tolerance 1/min : ± 30

Rated speed rpm : 280

CRT mm min. : > 8.80

Rated speed rpm : 550

CRT mm max. : < 4.40

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 12.25
Tolerance mm : ± 0.05

Rated speed rpm : 1100
rack travel mm : 11.95
Tolerance mm : ± 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 56.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Spreed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 257

Injection pump
Pump designation : PES4A80D320RS1282
EP type number : 9 400 083 056

Governor
Governor design. : RSV350...1100A2C2129
: -6R
Governor no. : 9 420 083 270

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 49.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Spread

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 7.70
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 635
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 8.75
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 9.25
Tolerance mm : + 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00

LOW IDLE

FD6

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 261
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...125GAG2029
: -3R
Governor no. : 9 420 083 27'
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 8.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.0

Speed	
Tolerance	
cm3/1000 strokes :	2.5
Check tolerance	
cm3/1000S. :	4.0
Rated speed rpm : 350	
Rack travel in mm : 6.00	
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	8.0
Tolerance	
cm3/1000 strokes :	+ 1.5
Check tolerance	
cm3/1000S. :	+ 3.5
Speed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm : 800	
Rack travel in mm : 0.65	
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250	
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	50.0
Tolerance	
cm3/1000 strokes :	+ 0.5
Check tolerance	
cm3/1000S. :	+ 2.0
Speed	

Tolerance	
cm3/1000 strokes :	2.5
Check tolerance	
cm3/1000S. :	4.0

CONTROL LEVER

control lever	
position degree :	106.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm : 7.20	
Rated speed rpm : 1295	
Tolerance 1/min :	+ 5

rack travel mm : 4.00	
Rated speed rpm : 1335	
Tolerance 1/min :	+ 15

rack travel mm : 0.85	
Tolerance mm :	+ 0.55
Rated speed rpm : 1450	

LOW IDLE

control lever	
position degree :	79.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm : 350	
rack travel mm : 5.50	
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm : 350	
rack travel mm : 6.00	
Tolerance mm :	+ 0.10

rack travel mm : 2.00	
Rated speed rpm : 510	
Tolerance 1/min :	+ 30

Rated speed rpm : 100	
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CRT mm min. : > 19.00	
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TORQUE CONTROL

Rated speed rpm : 1250	
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rack travel mm : 8.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 9.25
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil :
Combination No. : 9 400 085 266
Injection pump
Pump designation : PES6A95D410RS2751
EP type number : 9 400 084 013
Governor
Governor design. : RSV650...1250A8C2231
: L
Governor no. : 9 420 083 229
Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 L NA
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference * CS : 6.50

BASIC SETTING

Rated speed rpm : 1220
Rack travel in mm : 11.05
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 82.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.0

Speed		
Tolerance		
cm3/1000 strokes :	3.5	
Check tolerance		
cm3/1000S. :	8.0	
Rated speed rpm :		650
Rack travel in mm :		6.80
Tolerance mm :	±	0.10
Del. quantity		
cm3/1000 strokes :		9.0
Tolerance		
cm3/1000 strokes :	±	2.0
Check tolerance		
cm3/1000S. :	±	4.5
Speed		
Tolerance		
cm3/1000 strokes :		5.5
Check tolerance		
cm3/1000S. :		9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever		
position degree :	- 3	
Rated speed rpm :	800	
Rack travel in mm :		0.65
Tolerance mm :	±	0.35
governor spring		
pre-tension		
click setting x :		3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1220
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	82.0
Tolerance	
cm3/1000 strokes :	± 1.0
Check tolerance	
cm3/1000S. :	± 3.0
Speed	

Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	101.0
tolerance degree :	± 4.0

RATED SPEED

rack travel mm :	10.00
Rated speed rpm :	1268
Tolerance 1/min :	± 3

rack travel mm :	4.00
Rated speed rpm :	1298
Tolerance 1/min :	± 3

rack travel mm :	0.85
Tolerance mm :	± 0.55
Rated speed rpm :	1420

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	± 4.0

Setting point w/out bumper spring

Rated speed rpm :	650
rack travel mm :	6.30
Tolerance mm :	± 0.10

Testing:

Rated speed rpm :	650
rack travel mm :	6.80
Tolerance mm :	± 0.10

rack travel mm :	2.00
Rated speed rpm :	760
Tolerance 1/min :	± 30

Rated speed rpm :	100
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CRT mm min. :	> 19.00
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TORQUE CONTROL

Rated speed rpm :	1220
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rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil :

Combination No. : 9 400 085 267

Injection pump
Pump designation : PES6A95D410RS2751
EP type number : 9 400 084 013

Governor
Governor design. : RSV650...1250A8C2231
: -1L
Governor no. : 9 420 083 230

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 L TC
Power KW : 112.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 6.50

BASIC SETTING

Rated speed rpm : 1220

Rack travel in mm : 11.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed		
Tolerance		
cm3/1000 strokes :	3.5	
Check tolerance		
cm3/1000S. :	8.0	
Rated speed rpm :		650
Rack travel in mm :		6.80
Tolerance mm :	+ 0.10	
Del. quantity		
cm3/1000 strokes :	9.0	
Tolerance		
cm3/1000 strokes :	+ 2.0	
Check tolerance		
cm3/1000S. :	+ 4.5	
Spreed		
Tolerance		
cm3/1000 strokes :	5.5	
Check tolerance		
cm3/1000S. :	9.0	

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever		
position degree :	- 3	
Rated speed rpm :	800	
Rack travel in mm :		0.65
Tolerance mm :	+ 0.35	
governor spring		
pre-tension		
click setting x :	3.25	

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1220
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	92.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	

Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	101.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.90
Rated speed rpm :	1268
Tolerance 1/min :	+ 3

rack travel mm :	4.00
Rated speed rpm :	1303
Tolerance 1/min :	+ 3

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1420

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	650
rack travel mm :	6.30
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm :	650
rack travel mm :	6.80
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	760
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1220
-------------------	------

rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 268

Injection pump
Pump designation : PES4A90D320RS2702
EP type number : 9 400 083 095

Governor
Governor design. : RSV350...1150A2C2129
: -7R
Governor no. : 9 420 083 273

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : TD 229 EC-4
Power KW : 66.2

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 78.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Spreed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 13.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 4.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 78.0
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 2.5
Spreed

Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.30
Rated speed rpm : 1195
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.60
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed

Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 270

Injection pump
Pump designation : PES6A90D32ORS2718
EP type number : 9 400 084 003

Governor
Governor design. : RSV350...1400A2C2215
: -1R
Governor no. : 9 420 083 231

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D229/6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 62.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed		
Tolerance		
cm ³ /1000 strokes :	3.0	
Check tolerance		
cm ³ /1000S. :	7.0	
Rated speed rpm :		350
Rack travel in mm :		5.50
Tolerance mm :	+	0.10
Del. quantity		
cm ³ /1000 strokes :	13.0	
Tolerance		
cm ³ /1000 strokes :	+	2.0
Check tolerance		
cm ³ /1000S. :	+	4.0
Speed		
Tolerance		
cm ³ /1000 strokes :	4.5	
Check tolerance		
cm ³ /1000S. :	7.0	

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever		
position degree :	- 3	
Rated speed rpm :	800	
Rack travel in mm :		0.65
Tolerance mm :	+	0.35
governor spring		
pre-tension		
click setting x :	5.00	

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :		1400
Aneroid pressure		
hPa :	-	
Del. quantity		
cm ³ /1000 strokes :	62.0	
Tolerance		
cm ³ /1000 strokes :	+	0.5
Check tolerance		
cm ³ /1000S. :	+	2.5
Speed		

Tolerance	
cm ³ /1000 strokes :	3.0
Check tolerance	
cm ³ /1000S. :	7.0

CONTROL LEVER

control lever		
position degree :	59.0	
tolerance degree :	+	4.0

RATED SPEED

rack travel mm :		7.50
Rated speed rpm :	1445	
Tolerance 1/min :	+	5

rack travel mm :		4.00
Rated speed rpm :	1490	
Tolerance 1/min :	+	15

rack travel mm :		0.85
Tolerance mm :	+	0.55
Rated speed rpm :	1650	

LOW IDLE

control lever		
position degree :	25.0	
tolerance degree :	+	4.0

Setting point w/out bumper spring

Rated speed rpm :		350
rack travel mm :		5.00
Tolerance mm :	+	0.10

Testing:

Rated speed rpm :		350
rack travel mm :		5.50
Tolerance mm :	+	0.10

rack travel mm :		2.00
Rated speed rpm :		590
Tolerance 1/min :	+	30

Rated speed rpm :		100
-------------------	--	-----

CRT mm min. :		> 19.00
---------------	--	---------

TORQUE CONTROL

Rated speed rpm :		1400
-------------------	--	------

rack travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 9.15
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 8.95
Tolerance mm : + 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

LOW IDLE

Note remarks

Edition : 21.02.97
Test oil : ISO 4113

Injection pump
Pump designation : PES4A90D320RS2744
EP type number : 9 400 084 012

Cust. part No. :

```
Customer-spec. information
Customer      : MWM
Motor        : TD 229-4
```

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

Test pressure bar : 26.0
Tolerance bar : \pm 1.0

```
Prestroke mm      :      2.75
Tolerance mm      :  +-  0.05
Check
tolerance mm      :  +-  0.10
```

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

```
and maximum rack      : 10.50
travel                : + 1.50
Tolerance mm          : 3.50
Difference * CS       :
```

Rated speed rpm : 1300

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 89.5

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 2.5

Spreed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 89.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spreed

Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.60
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1425
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 4.50
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1300

rack travel mm : 10.65
 Tolerance mm : \pm 0.05

 Rated speed rpm : 500
 rack travel mm : 11.25
 Tolerance mm : \pm 0.05

 Rated speed rpm : 800
 rack travel mm : 11.05
 Tolerance mm : \pm 0.15

 Rated speed rpm : 900
 rack travel mm : 10.85
 Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 88.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000s. : \pm 3.5

Aneroid pressure
 hPa : -
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000s. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.00
 Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : \pm 2.0

Check tolerance
 cm³/1000s. : \pm 4.0
 Speed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000s. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 283
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RSV350...1250A0C1150
: -3L
Governor no. : 9 420 083 255
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 352-A

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 10.05
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000s. : + 2.5
Speed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 350
Rack travel in mm : 7.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : ± 0.35
governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.00
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1350
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.70
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 7.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.05
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 10.10

Tolerance mm : \pm 0.10
Rated speed rpm : 400
rack travel mm : 11.50
Tolerance mm : \pm 0.30

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 200
rack travel mm : 14.50
Tolerance mm : \pm 0.30

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 286
Injection pump
Pump designation : PES6A90D320RS2701
EP type number : 9 400 083 094
Governor
Governor design. : RSV350...1150A2C2097
: -2R
Governor no. : 9 420 083 224

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-6
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5

Speed		
Tolerance		
cm ³ /1000 strokes :	3.0	
Check tolerance		
cm ³ /1000S. :	7.0	
Rated speed rpm :		350
Rack travel in mm :		6.00
Tolerance mm :	+ 0.10	
Del. quantity		
cm ³ /1000 strokes :	12.5	
Tolerance		
cm ³ /1000 strokes :	+ 2.0	
Check tolerance		
cm ³ /1000S. :	+ 4.0	
Speed		
Tolerance		
cm ³ /1000 strokes :	4.5	
Check tolerance		
cm ³ /1000S. :	7.0	

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever		
position degree :	- 3	
Rated speed rpm :	800	
Rack travel in mm :		0.65
Tolerance mm :	+ 0.35	
governor spring		
pre-tension		
click setting x :	4.25	

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1150
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	62.5
Tolerance	
cm ³ /1000 strokes :	+ 0.5
Check tolerance	
cm ³ /1000S. :	+ 2.5
Speed	

Tolerance	
cm ³ /1000 strokes :	3.0
Check tolerance	
cm ³ /1000S. :	7.0

CONTROL LEVER

control lever	
position degree :	46.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	8.20
Rated speed rpm :	1195
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1245
Tolerance 1/min :	+ 15

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1400

LOW IDLE

control lever	
position degree :	20.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	350
rack travel mm :	5.50
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm :	350
rack travel mm :	6.00
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	600
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1150
-------------------	------

rack travel mm : 9.25
 Tolerance mm : \pm 0.05

Rated speed rpm : 500
 rack travel mm : 9.85
 Tolerance mm : \pm 0.05

Rated speed rpm : 800
 rack travel mm : 9.55
 Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -

Rated speed rpm : 500

Del. quantity
 cm³/1000 strokes : 54.5

Tolerance
 cm³/1000 strokes : \pm 1.5

Check tolerance
 cm³/1000s. : \pm 3.5

Speed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000s. : 8.0

Aneroid pressure
 hPa : -

Rated speed rpm : 800

Del. quantity
 cm³/1000 strokes : 60.5

Tolerance
 cm³/1000 strokes : \pm 1.5

Check tolerance
 cm³/1000s. : \pm 3.5

Speed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000s. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.00
 Tolerance mm : \pm 1.00

LOW IDLE

602

Rated speed rpm : 350

Del. quantity
 cm³/1000 strokes : 12.5

Tolerance
 cm³/1000 strokes : \pm 2.0

Check tolerance
 cm³/1000s. : \pm 4.0

Speed
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000s. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 293

Injection pump
Pump designation : PES6A80D410RS2755
EP type number : 9 400 093 005

Governor
Governor design. : RQV300...1400AB1234L
Governor no. : 9 420 080 241

Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : F 6 L 913

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

G03

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 69.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000s. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 775
guide sleeve
travel mm : 4.35
Tolerance mm : + 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 8.50
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.95
Tolerance mm : + 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 2.85
Tolerance mm : + 0.15

Rated speed rpm : 950
guide sleeve
travel mm : 5.35
Tolerance mm : + 0.15

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 69.5
Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000s. : + 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 4.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1585
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 10.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 7.50

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.95
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 295

Injection pump
Pump designation : PES4A90D410RS2666
EP type number : 0 410 894 029

Governor
Governor design. : RQV300...1400AB1065
: 5L
Governor no. : 0 420 212 169

Cust. part No. : 016 074 87 02

Customer-spec. information
Customer : MBB
Motor : OM364
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 63.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 300
 Rack travel in mm : 8.70
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : \pm 0.05

 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : \pm 0.25

 Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : \pm 0.25

 Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1500

 Rack travel in mm : 16.50
 Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 63.5
 Tolerance
 cm³/1000 strokes : \pm 0.5
 Check tolerance
 cm³/1000S. : \pm 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 62.0
 tolerance degree : \pm 4.0

 control lever
 position degree : 111.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.90
 Rated speed rpm : 1455
 Tolerance 1/min : \pm 5

 rack travel mm : 4.00
 Rated speed rpm : 1575
 Tolerance 1/min : \pm 15

 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1700

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : \pm 4.0

 control lever
 position degree : 23.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.70
 Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 10.00
Rated speed rpm : 610

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 297

Injection pump
Pump designation : PES6A95D410RS2758-1
EP type number : 9 400 084 015

Governor
Governor design. : RQV350...1200AB1220
: 2L
Governor no. : 9 420 080 252

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 L TC
Power kW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350
Rack travel in mm : 6.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : + 0.20

Rated speed rpm : 1200
guide sleeve
travel mm : 7.80
Tolerance mm : + 0.10

Rated speed rpm : 700
guide sleeve
travel mm : 4.30
Tolerance mm : + 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 3.30
Tolerance mm : + 0.20

Rated speed rpm : 270
guide sleeve
travel mm : 1.00
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1400

Rack travel in mm : 7.90
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : + 4.0

control lever
position degree : 117.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1250
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1395
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

control lever
position degree : 16.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 10.00

Rated speed rpm : 395

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 14.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 490
rack travel mm : 3.40
Tolerance mm : \pm 0.20

Pressure hPa : 355
rack travel mm : 1.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil :
Combination No. : 9 400 085 299
Injection pump
Pump designation : PES6A95D410RS2751
EP type number : 9 400 034 013
Governor
Governor design. : RSV650...1250A8C2231
: -2L
Governor no. : 9 420 083 236
Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 L TC
Power KW : 123.8

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

G13

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 6.50

BASIC SETTING

Rated speed rpm : 1220
Rack travel in mm : 12.55
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 99.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 650

Rack travel in mm : 6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1220
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 99.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.50

Rated speed rpm : 1268
Tolerance 1/min : + 3

rack travel mm : 4.00
Rated speed rpm : 1303

Tolerance 1/min : + 3

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1420

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 6.30
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 6.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 760
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1220

rack travel mm : 12.55
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 301
Injection pump
Pump designation : PES6A85D410RS2415
EP type number : 0 410 886 907
Governor
Governor design. : RQV350...1325AB1234
: 1L
Governor no. : 9 420 080 259
Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : BF 6L 913
Power KW : 116.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 32.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1325
Rack travel in mm : 11.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 350
Rack travel in mm : 8.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 900
guide sleeve
travel mm : 4.95
Tolerance mm : ± 0.25

Rated speed rpm : 1400
guide sleeve
travel mm : 8.90
Tolerance mm : ± 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : ± 0.25

Rated speed rpm : 600
guide sleeve
travel mm : 2.85
Tolerance mm : ± 0.25

Rated speed rpm : 1200
guide sleeve
travel mm : 6.95
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1325
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : ± 4.0

control lever
position degree : 116.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.10
Rated speed rpm : 1370
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1470
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

control lever
position degree : 15.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 9.00

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1325
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.15

Rated speed rpm : 1100
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 300

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 320

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 302
Injection pump
Pump designation : PES6A90D320RS2767
EP type number : 9 400 084 017
Governor
Governor design. : RSV300...1400AOC2207
: -2R
Governor no. : 9 420 083 299
Cust. part No. : 905200569079

Customer-spec. information
Customer : MWM
Motor : TBD 229-6 EC
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 14.35
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 120.5
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 2.5

<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	7.0
<hr/>	

Rated speed rpm :	300
Rack travel in mm :	8.00
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	15.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.5
Check tolerance	
cm3/1000S. :	7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1400
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	120.5
Tolerance	
cm3/1000 strokes :	+ 0.5
Check tolerance	
cm3/1000S. :	+ 2.5
Spreed	

Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	7.0

CONTROL LEVER

control lever	
position degree :	116.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	13.30
Rated speed rpm :	1445
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1555
Tolerance 1/min :	+ 15

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1700

LOW IDLE

control lever	
position degree :	80.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	300
rack travel mm :	7.50
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm :	300
rack travel mm :	8.00
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	485
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1400
-------------------	------

rack travel mm : 14.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 14.40
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : 15.80
Tolerance mm : \pm 0.30

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97

Test oil :

Combination No. : 9 400 085 303

Injection pump
Pump designation : PES6A95D410RS2714
EP type number : 9 400 084 001

Governor
Governor design. : RQV375...1300AB1208
: 3L

Governor no. : 9 420 080 263

Cust. part No. :

Customer-spec. information

Customer : FORD
Motor : 6,6 TC
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery differende

and maximum rack
travel : 10.95
Tolerance mm : ± 1.95
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve

travel mm : 6.45
Tolerance mm : ± 0.15

Rated speed rpm : 1345
guide sleeve

travel mm : 8.55
Tolerance mm : ± 0.05

Rated speed rpm : 350

guide sleeve
travel mm : 1.45
Tolerance mm : ± 0.15

Rated speed rpm : 700

guide sleeve
travel mm : 4.30
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1345

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 16.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 375
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 680
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 9.50
Rated speed rpm : 495

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.15
Tolerance mm : + 0.05

Rated speed rpm : 850
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.55
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 420
rack travel mm : 0.40
Tolerance mm : + 0.10

Pressure hPa : 510
rack travel mm : 1.15
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80

Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 850
Del. quantity
cm3/1000 strokes : 86.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 62.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.0
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 122.0
Tolerance
cm3/1000 strokes : + 8.0
Check tolerance
cm3/1000S. : + 11.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 9.0
Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil :
Combination No. : 9 400 085 304
Injection pump
Pump designation : PES6A95D412RS2709
EP type number : 9 400 083 099
Governor
Governor design. : RQV350...1400AB1202
: 3L
Governor no. : 9 420 080 262
Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6.6 L NA
Power KW : 108.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

G27

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 10.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Rated speed rpm : 350	
Rack travel in mm :	6.70
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	10.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1100
guide sleeve	
travel mm :	6.25
Tolerance mm :	+ 0.15
Rated speed rpm :	1420
guide sleeve	
travel mm :	8.55
Tolerance mm :	+ 0.05
Rated speed rpm :	350
guide sleeve	
travel mm :	1.45
Tolerance mm :	+ 0.15
Rated speed rpm :	700
guide sleeve	
travel mm :	4.40
Tolerance mm :	+ 0.20

GUIDE SLEEVE POSITION

control lever	
position degree :	- 1

Rated speed rpm :	1420
Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1400
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	75.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	62.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	9.40
Rated speed rpm :	1455
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1555
Tolerance 1/min :	+ 15
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1720

LOW IDLE

control lever	
position degree :	14.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	350
rack travel mm :	6.70
Tolerance mm :	+ 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 495

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 306
Injection pump
Pump designation : PES6A90D410RS2596
EP type number : 0 410 896 073
Governor
Governor design. : RQV300...1400AB1066
: 7L
Governor no. : 9 420 080 267
Cust. part No. : 0180742402

Customer-spec. information
Customer : MBB
Motor : OM352A
Power KW : 121.4

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

H02

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 12.45
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 78.0
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 2.5
Spreed
Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 9.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : + 4.0

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1590
Tolerance 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1750

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

control lever
position degree : 21.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 9.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 10.30

Rated speed rpm : 620

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.35
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 375
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Pressure hPa : 465
rack travel mm : 12.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 66.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : 700
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 307
Injection pump
Pump designation : PES4A95D410RS2774
EP type number : 9 400 084 019
Governor
Governor design. : RQV300...1300AB1228
: 1L
Governor no. : 9 420 080 268
Cust. part No. : 018 074 50 02

Customer-spec. information
Customer : MBB
Motor : OM 364 A
Power KW : 85.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

H06

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 10.65
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
 Rack travel in mm : 7.00
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : \pm 0.05

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : \pm 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : \pm 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1500

Rack travel in mm : 16.50
 Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 91.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 59.0
 tolerance degree : \pm 4.0

control lever
 position degree : 108.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 9.60
 Rated speed rpm : 1365
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1490
 Tolerance 1/min : \pm 15

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1640

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : \pm 4.0

control lever
 position degree : 19.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.00
 Tolerance mm : \pm 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00
 Rated speed rpm : 485

TORQUE CONTROL

Rated speed rpm : 1300
 rack travel mm : 10.65
 Tolerance mm : ± 0.05

Rated speed rpm : 800
 rack travel mm : 11.05
 Tolerance mm : ± 0.05

Rated speed rpm : 1000
 rack travel mm : 10.90
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 700
 rack travel mm : 11.05
 Tolerance mm : ± 0.05

Pressure hPa : -
 Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 280
 rack travel mm : 0.45
 Tolerance mm : ± 0.05

Pressure hPa : 410
 rack travel mm : 1.40
 Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 220

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 700
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 86.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000s. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. : 8.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000s. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000s. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 13.00
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 84.0
 Tolerance
 cm³/1000 strokes : ± 7.5
 Check tolerance
 cm³/1000s. : ± 10.0

LOW IDLE

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000s. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 310
Injection pump
Pump designation : PES6A95D410RS2772
EP type number : 9 400 084 018
Governor
Governor design. : RQV300...1300AB1066
: 8L
Governor no. : 9 420 080 279
Cust. part No. :

Customer-spec. information

Customer : 1483
Motor : OM 366 LA
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

H10

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 7.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.10
Rated speed rpm : 1365
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1500
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 8.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 300
rack travel mm : 0.40
Tolerance mm : \pm 0.10

Pressure hPa : 450
rack travel mm : 1.05
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 319
Injection pump
Pump designation : PES6A95D410RS2772
EP type number : 9 400 084 018
Governor
Governor design. : RQV300...1400AB1066
: 10L
Governor no. : 9 420 080 287
Cust. part No. : 019 074 52 02

Customer-spec. information
Customer : MBB
Motor : OM 352 A
Power KW : 141.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

H13

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.55
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.00

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 11.0

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.5

Speed

Tolerance

cm³/1000 strokes : 5.5

Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500

guide sleeve

travel mm : 8.55

Tolerance mm : \pm 0.05

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm : \pm 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm : \pm 0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1500

Rack travel in mm : 16.50

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Aneroid pressure

hPa : 700

Del. quantity

cm³/1000 strokes : 78.5

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 3.0

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 62.0

tolerance degree : \pm 4.0

control lever

position degree : 111.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.50

Rated speed rpm : 1465

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1550

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1650

LOW IDLE

control lever

position degree : 67.0

tolerance degree : \pm 4.0

control lever

position degree : 19.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.00

Rated speed rpm : 485

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.55
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 9.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 10.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 170
rack travel mm : 0.55
Tolerance mm : \pm 0.05

Pressure hPa : 330
rack travel mm : 1.20
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : 700
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97

Test oil : ISO 4113

Combination No. : 9 400 085 381

Injection pump

Pump designation : PES6A100D12ORS2868

EP type number : 9 400 084 037

Governor

Governer design. : RSV450...1200A0C2289

: R

Governer no. : 9 420 083 304

Cust. part No. : 3927763

Customer-spec. information

Customer : CUMMINS

Motor : 6BT

Power kW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.90

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 6.75

Tolerance : ± 0.10

Check

tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 10.50

Tolerance mm : ± 1.50

Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 8.75

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 76.0
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 3.0
<hr/>	
Speed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance cm ³ /1000S.	: 8.0
<hr/>	

Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 23.5
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 4.5
<hr/>	
Speed	
Tolerance cm ³ /1000 strokes	: 5.5
Check tolerance cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 76.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 8.0

CONTROL LEVER

control lever position degree	: 112.0
tolerance degree	: + 4.0

<hr/>	
RATED SPEED	
rack travel mm	: 7.70
Rated speed rpm	: 1245
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1310
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1400

LOW IDLE

control lever position degree	: 87.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 5.10
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 350
rack travel mm	: 5.60
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 505

Tolerance 1/min : + 30
Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 8.75
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 9.05
Tolerance mm : + 0.05

Rated speed rpm : 880
rack travel mm : 9.05
Tolerance mm : + 0.05

Rated speed rpm : 1030
rack travel mm : 8.75
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm3/1000 strokes : 82.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 168.0
Tolerance
cm3/1000 strokes : + 8.0
Check tolerance
cm3/1000S. : + 11.0

LOW IDLE

H19

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 23.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 382

Injection pump
Pump designation : PES6A100D120RS2869
EP type number : 9 400 084 038

Governor
Governor design. : RQV350...1100AB1303R
Governor no. : 9 420 080 381

Cust. part No. : 3356052

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA 215 hp
Power KW : 159.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H2O

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 4.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 145.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.40

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 850

guide sleeve
travel mm : 4.75

Tolerance mm : \pm 0.25

Rated speed rpm : 1050

guide sleeve
travel mm : 5.90

Tolerance mm : \pm 0.10

Rated speed rpm : 350

guide sleeve
travel mm : 1.45

Tolerance mm : \pm 0.25

Rated speed rpm : 600

guide sleeve

travel mm : 3.65

Tolerance mm : \pm 0.25

Rated speed rpm : 1350

guide sleeve
travel mm : 8.35

Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 16.50

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 145.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 55.0

tolerance degree : \pm 4.0

control lever

position degree : 110.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1170

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1350

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

control lever
position degree : 13.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.40
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.75
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1100
rack travel mm : 12.75
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 690

H22

rack travel mm : 2.25
Tolerance mm : + 0.15

Pressure hPa : 300
rack travel mm : 0.70
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + 8.0
Check tolerance
cm³/1000S. : + 11.0

LOW IDLE

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 383
Injection pump
Pump designation : PES6A95D410RS2772
EP type number : 9 400 084 018
Governor
Governor design. : RQV300...1300AB1066
: 13L
Governor no. : 9 420 080 332
Cust. part No. : 026 074 53 02

Customer-spec. information
Customer : MBB
Motor : OM 366 LA-EURO 1
Power KW : 147.1

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 7.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : ± 0.05
Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : ± 0.25
Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : ± 0.25
Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500
Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : ± 4.0

control lever
position degree : 109.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.60
Rated speed rpm : 1360
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1505
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

control lever
position degree : 19.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.00
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 240
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Pressure hPa : 520
rack travel mm : 1.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97

Test oil : ISO 4113

Combination No. : 9 400 085 384

Injection pump

Pump designation : PES4A95D41ORS2887

EP type number : 9 400 084 040

Governor

Governer design. : RQV300...1300AB1307L

Governer no. : 9 420 080 385

Cust. part No. : 0260745402

Customer-spec. information

Customer : MBB

Motor : OM 364A/ EURO I

Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 0 681 343 009

Opening pressure
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.05

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 85.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 3.0

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000s. : 8.0

Rated speed rpm : 300
 Rack travel in mm : 8.20
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : \pm 0.05

 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : \pm 0.25

 Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : \pm 0.25

 Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1500

 Rack travel in mm : 16.50
 Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 59.0
 tolerance degree : \pm 4.0

 control lever
 position degree : 110.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.00
 Rated speed rpm : 1345
 Tolerance 1/min : \pm 5

 rack travel mm : 4.00
 Rated speed rpm : 1485
 Tolerance 1/min : \pm 15

 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1640

LOW IDLE

control lever
 position degree : 71.0
 tolerance degree : \pm 4.0

 control lever
 position degree : 22.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.20
 Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 9.50
Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 640
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 240
rack travel mm : 0.35
Tolerance mm : \pm 0.05

Pressure hPa : 350
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80

Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 385
Injection pump
Pump designation : PES6A95D410RS2886
EP type number : 9 400 084 039
Governor
Governor design. : RQV300...1300AB1306L
Governor no. : 9 420 080 384
Cust. part No. : 0260745502

Customer-spec. information
Customer : MBB
Motor : OM 366 A
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 10.85
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 8.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.05
Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25
Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25
Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500
Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : + 4.0

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.80
Rated speed rpm : 1355
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

control lever
position degree : 22.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Pressure hPa : 450
rack travel mm : 1.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 250

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 42.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 386
Injection pump
Pump designation : PES6A95D410RS2812
EP type number : 9 400 084 028
Governor
Governor design. : RQV350...1300AB1304L
Governor no. : 9 420 080 382

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : 6.10 T
Power KW : 124.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 91.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 800
guide sleeve
travel mm : 3.95
Tolerance mm : + 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 7.20
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 2.75
Tolerance mm : + 0.25

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1485

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 58.0
tolerance degree : + 4.0

control lever
position degree : 113.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.60
Rated speed rpm : 1418
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1550
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 880
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1260
rack travel mm : 11.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470

rack travel mm : 1.75
Tolerance mm : \pm 0.15

Pressure hPa : 270
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000s. : \pm 11.0

LOW IDLE

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 387
Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028
Governor
Governor design. : RQV450...1150AB1305R
Governor no. : 9 420 080 383
Cust. part No. : 3355883

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT - 8.3 L
Power KW : 126.8

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

J12

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference * CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.45

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 4.90

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 900

guide sleeve
travel mm : 5.65

Tolerance mm : \pm 0.25

Rated speed rpm : 1150

guide sleeve
travel mm : 7.50

Tolerance mm : \pm 0.10

Rated speed rpm : 400

guide sleeve
travel mm : 1.85

Tolerance mm : \pm 0.25

Rated speed rpm : 650

guide sleeve
travel mm : 4.35

Tolerance mm : \pm 0.25

Rated speed rpm : 1300

guide sleeve
travel mm : 8.95

Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1245

Rack travel in mm : 16.50

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 58.0

tolerance degree : \pm 4.0

control lever
position degree : 113.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.40

Rated speed rpm : 1195

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1300

Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 16.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 450
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 11.00

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 300

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 320

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 388
Injection pump
Pump designation : PES6A95D410RS2886
EP type number : 9 400 084 039
Governor
Governor design. : RQV300...1300AB1306L
Governor no. : 9 420 080 384
Cust. part No. : 0260746702

Customer-spec. information
Customer : MBS
Motor : OM 366A EURO I
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 10.85
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 8.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : ± 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : ± 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : ± 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : ± 4.0

control lever
position degree : 109.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.80
Rated speed rpm : 1355
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

control lever
position degree : 22.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 8.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 10.85
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 11.15
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 11.85
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.85
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 0.60
Tolerance mm : + 0.10

Pressure hPa : 450
rack travel mm : 1.75
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 42.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : + 7.5
Check tolerance
cm³/1000S. : + 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 389

Injection pump
Pump designation : PES6A95D410RS2812
EP type number : 9 400 084 028

Governor
Governor design. : RQV350...1300AB1309L
Governor no. : 9 420 080 386

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : 6.10 TCA
Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 99.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 800
guide sleeve
travel mm : 3.95
Tolerance mm : \pm 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 7.20
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1490

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 114.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.90
Rated speed rpm : 1425
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1570
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1730

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

control lever
position degree : 12.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 8.50
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.95
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.95
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.95
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 380
rack travel mm : 1.80
Tolerance mm : ± 0.10
Pressure hPa : 190
rack travel mm : 0.55
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 8.0
Check tolerance
cm³/1000S. : ± 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 390

Injection pump
Pump designation : PES6A95D410RS2886
EP type number : 9 400 084 039

Governor
Governor design. : RQV300...1300AB1310L
Governor no. : 9 420 080 388

Cust. part No. : 0260746902

Customer-spec. information
Customer : MBB
Motor : OM 366LA/EURO I
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : + 4.0

control lever
position degree : 110.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1385
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1530
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

control lever
position degree : 21.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.10
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Pressure hPa : 430
rack travel mm : 1.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 250

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.90

Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 391

Injection pump
Pump designation : PES6A95D410RS2886
EP type number : 9 400 084 039

Governor
Governor design. : RQV300...1300AB1310L
Governor no. : 9 420 080 388

Cust. part No. : 0260745802

Customer-spec. information
Customer : MBB
Motor : OM 366LA/EURO I
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : \pm 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : \pm 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 110.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1385
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1530
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

control lever
position degree : 21.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.10
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 9.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 280
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Pressure hPa : 430
rack travel mm : 1.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 250

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.90

Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 392
Injection pump
Pump designation : PES6A95D320RS2806
EP type number : 0 410 896 898
Governor
Governor design. : RSV375...1150AOC830R
Governor no. : 9 420 033 305

Cust. part No. : 82085500

Customer-spec. information
Customer : VALMET
Motor : 620 DS
Power kW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.00

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 5.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread

K04

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 37.0
tolerance degree : ± 4.0

control lever
position degree : 87.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1175
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 66.0
tolerance degree : ± 4.0

control lever
position degree : 16.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 375
rack travel mm : 5.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 465
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 103.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 375

K05

Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 394

Injection pump
Pump designation : PES6A95D320RS2896
EP type number : 9 400 084 041

Governor
Governor design. : RSV375...1150AOC834R
Governor no. : 9 420 083 306

Cust. part No. : 82085600

Customer-spec. information
Customer : VALMET
Motor : 620 DS
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.20

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 87.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 4.70

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed

K07

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 37.0
tolerance degree : ± 4.0

control lever
position degree : 87.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1185
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 66.0
tolerance degree : ± 4.0

control lever
position degree : 16.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 4.20
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 375
rack travel mm : 4.70
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Rated speed rpm : 930
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Rated speed rpm : 1030
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 085 395

Injection pump
Pump designation : PES6A95D410RS2886
EP type number : 9 400 084 039

Governor
Governor design. : RQV300...1300AB1312L
Governor no. : 9 420 080 391

Cust. part No. : 0260749702

Customer-spec. information
Customer : MBB
Motor : OM 366LA/EURO I
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 7.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : \pm 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : \pm 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : \pm 4.0

control lever
position degree : 110.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 1350
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1515
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 8.80

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
 rack travel mm : 12.25
 Tolerance mm : \pm 0.05

Rated speed rpm : 700
 rack travel mm : 12.75
 Tolerance mm : \pm 0.05

Rated speed rpm : 950
 rack travel mm : 12.75
 Tolerance mm : \pm 0.05

Rated speed rpm : 1240
 rack travel mm : 12.25
 Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1200
 rack travel mm : 12.75
 Tolerance mm : \pm 0.05

Pressure hPa : -
 Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660
 rack travel mm : 2.40
 Tolerance mm : \pm 0.10

Pressure hPa : 410
 rack travel mm : 1.35
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 220

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 111.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 950
 Del. quantity
 cm³/1000 strokes : 111.5
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 15.00

Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 108.5
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 085 396
Injection pump
Pump designation : PES6A950410RS2886
EP type number : 9 400 084 039
Governor
Governor design. : RGV300...1300AB1312L
Governor no. : 9 420 030 391

Cust. part No. : 0260749602

Customer-spec. information
Customer : MBB
Motor : OM 366LA/EURO I
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 109.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000s. : ± 3.0

Spread

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Rack travel in mm : 7.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : +- 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : +- 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : + 4.0

control lever
position degree : 110.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 1350
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1515
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

control lever
position degree : 20.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.80

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 1240
rack travel mm : 12.25
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660
rack travel mm : 2.40
Tolerance mm : \pm 0.10

Pressure hPa : 410
rack travel mm : 1.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 111.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : 1200

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 111.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 54.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00

Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 108.5
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 305
Injection pump
Pump designation : PES6P110A72ORS3145
EP type number : 9 400 087 033
Governor
Governor design. : RQV350...1300PA748
Governor no. : 9 420 080 193

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6l TC
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.5

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spread
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 500
guide sleeve
travel mm : 2.50

Tolerance mm : + 0.20

Rated speed rpm : 1300
guide sleeve
travel mm : 7.25

Tolerance mm : + 0.05

Rated speed rpm : 1000
guide sleeve
travel mm : 5.15

Tolerance mm : + 0.15

Rated speed rpm : 800
guide sleeve
travel mm : 4.15

Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 0.95

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Tolerance mm : + 0.35

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.60
Rated speed rpm : 1365
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 16.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 10.00

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 230
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 210
Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 93.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 308

Injection pump
Pump designation : PE5P110A720RS479
EP type number : 9 400 087 040

Governor
Governor design. : RQ300/1050PA718-1
Governor no. : 9 420 080 187

Cust. part No. : 3450749401

Customer-spec. information
Customer : MBB
Motor : OM355-5 A
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 004

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300
Rack travel in mm : 6.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : ± 2.5
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 6.85
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 2.40
Tolerance mm : ± 0.20

Rated speed rpm : 600
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 900
guide sleeve
travel mm : 6.20
Tolerance mm : ± 0.10

Rated speed rpm : 1170
guide sleeve
travel mm : 9.75
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 34.0
tolerance degree : ± 4.0

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 1103
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

control lever
position degree : 13.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : \pm 20

Rated speed rpm : 100

CRT mm min. : $>$ 8.50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.85
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.35
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 11.20
Tolerance mm : \pm 0.10

Pressure hPa : 400
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Start interlock

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Rated speed rpm : $>$ 110
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 90
Check
speed 1/min : $<$ 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 179.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 700
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.80
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : \pm 2.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 319
Injection pump
Pump designation : PE6P110A720RS371-1
EP type number : 0 411 816 166
Governor
Governor design. : RQV300...1050PA747
Governor no. : 9 420 080 195

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 355 A
Power kW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 004
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 11.55
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 18.5

Tolerance

cm³/1000 strokes : ± 2.5

Check tolerance

cm³/1000S. : ± 5.0

Spread

Tolerance

cm³/1000 strokes : 4.5

Check tolerance

cm³/1000S. : 7.5

(E) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 800

guide sleeve

travel mm : 5.65

Tolerance mm : ± 0.15

Rated speed rpm : 1070

guide sleeve

travel mm : 8.55

Tolerance mm : ± 0.05

Rated speed rpm : 270

guide sleeve

travel mm : 1.00

Tolerance mm : ± 0.20

Rated speed rpm : 450

guide sleeve

travel mm : 2.95

Tolerance mm : ± 0.15

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1070

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 162.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 67.0

tolerance degree : ± 4.0

control lever

position degree : 103.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1095

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1165

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 52.0

tolerance degree : ± 4.0

control lever

position degree : 16.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.60
Rated speed rpm : 305

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 132.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 334
Injection pump
Pump designation : PES6P110A720RS3149
EP type number : 9 400 087 045
Governor
Governor design. : RGV350...1300PA772
Governor no. : 9 420 080 209

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6L TC
Power KW : 121.4

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 13.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 500
guide sleeve
travel mm : 2.50
Tolerance mm : ± 0.20

Rated speed rpm : 1300
guide sleeve
travel mm : 7.25
Tolerance mm : ± 0.05

Rated speed rpm : 1000
guide sleeve
travel mm : 5.15
Tolerance mm : ± 0.15

Rated speed rpm : 800
guide sleeve
travel mm : 4.15
Tolerance mm : ± 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 0.95
Tolerance mm : ± 0.35

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1365
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1520
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 13.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm	:	7.30
Tolerance mm	:	± 0.10
rack travel mm	:	2.00
Rated speed rpm	:	630
Tolerance 1/min	:	± 30
Rated speed rpm	:	100
CRT mm min.	:	> 9.00
Rated speed rpm	:	405

TORQUE CONTROL

Rated speed rpm	:	1300
rack travel mm	:	13.15
Tolerance mm	:	± 0.05
Rated speed rpm	:	800
rack travel mm	:	13.15
Tolerance mm	:	± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1000
rack travel mm	:	13.15
Tolerance mm	:	± 0.05
Pressure hPa	:	-
Rated speed rpm	:	500
rack travel mm	:	11.65
Tolerance mm	:	± 0.05

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	500
rack travel mm	:	12.10
Tolerance mm	:	± 0.10
Pressure hPa	:	700
rack travel mm	:	12.75
Tolerance mm	:	± 0.05

Start interlock

Rated speed rpm	:	> 230
Rated speed rpm	:	< 290

Check speed 1/min	:	> 210
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Check speed 1/min	:	< 310
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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	1000
Rated speed rpm	:	800
Del. quantity cm ³ /1000 strokes	:	104.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 4.0

Aneroid pressure hPa	:	-
Rated speed rpm	:	500
Del. quantity cm ³ /1000 strokes	:	77.5
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	:	± 0.50
Del. quantity cm ³ /1000 strokes	:	110.0
Tolerance cm ³ /1000 strokes	:	± 10.0
Check tolerance cm ³ /1000S.	:	± 14.0

LOW IDLE

Rated speed rpm	:	350
Del. quantity cm ³ /1000 strokes	:	18.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 4.5
Speed Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 337

Injection pump
Pump designation : PES6P110A72ORS3150
EP type number : 9 400 087 046

Governor
Governor design. : RQV350...1300PA776
Governor no. : 9 420 080 212

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 7,8 L-TC
Power KW : 136.2

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 124.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 500
guide sleeve
travel mm : 2.50
Tolerance mm : + 0.20

Rated speed rpm : 1300
guide sleeve
travel mm : 7.25
Tolerance mm : + 0.05

Rated speed rpm : 1000
guide sleeve
travel mm : 5.15
Tolerance mm : + 0.15

Rated speed rpm : 800
guide sleeve
travel mm : 4.15
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 0.95

L04

Tolerance mm : + 0.35

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 124.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance

cm³/1000S. : + 3.0
Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.00
Rated speed rpm : 1365
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 15.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 660
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 9.50

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.35
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 12.35
Tolerance mm : + 0.05

Rated speed rpm : 1015
rack travel mm : 12.15
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 12.35
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.35
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 335
rack travel mm : 12.10

Tolerance mm : + 0.10

Pressure hPa : 245
rack travel mm : 11.65
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 230
Rated speed rpm : < 290

Check
speed 1/min : > 210
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0

Aneroid pressure
hPa : 600
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 109.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : + 10.0

Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 354

Injection pump
Pump designation : PES6P110A720RS3158
EP type number : 9 400 087 049

Governor
Governor design. : RQV350...1300PA787
Governor no. : 9 420 080 218

Cust. part No. :

Customer-spec. information:
Customer : FORD
Motor : 6,6 L-TC
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.00

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 113.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.80

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(R) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 500
guide sleeve

travel mm : 2.50

Tolerance mm : + 0.20

Rated speed rpm : 1300

guide sleeve

travel mm : 7.25

Tolerance mm : + 0.05

Rated speed rpm : 1000

guide sleeve

travel mm : 5.15

Tolerance mm : + 0.15

Rated speed rpm : 800

guide sleeve

travel mm : 4.15

Tolerance mm : + 0.15

Rated speed rpm : 350

guide sleeve

travel mm : 0.95

L08

Tolerance mm : + 0.35

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1350

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 113.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 62.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1365

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1485

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1600

LOW IDLE

control lever

position degree : 15.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 720
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 9.50

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.65
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.15
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 12.10
Tolerance mm : + 0.10

Rated speed rpm : 1050
rack travel mm : 11.85
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 230
Rated speed rpm : < 290

Check
speed 1/min : > 210
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 103.5
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spræed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 367

Injection pump
Pump designation : PES6P110A720RS3151
EP type number : 9 400 087 047

Governor
Governor design. : RQV350...1200PA777
Governor no. : 9 420 080 234

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 7,8 L TC
Power KW : 165.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 142.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 500
guide sleeve
travel mm : 2.50
Tolerance mm : ± 0.20

Rated speed rpm : 1300
guide sleeve
travel mm : 7.25
Tolerance mm : ± 0.05

Rated speed rpm : 1000
guide sleeve
travel mm : 5.15
Tolerance mm : ± 0.15

Rated speed rpm : 800
guide sleeve
travel mm : 4.15
Tolerance mm : ± 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 0.95
Tolerance mm : ± 0.35

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 142.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 1265
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 15.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm : 7.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 650
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 9.00

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.15
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 14.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 14.15
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.15
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 390
rack travel mm : 12.70
Tolerance mm : ± 0.10

Pressure hPa : 580
rack travel mm : 13.75
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 230
Rated speed rpm : < 290

Check
speed 1/min : > 210

Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.02.97
Test oil : ISO 4113

Combination No. : 9 400 087 418

Injection pump
Pump designation : PES6P120A720RS3234
EP type number : 9 400 087 068

Governor
Governor design. : RQV350...1150PA923
: K
Governor no. : 9 420 080 273

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 7.8 Ltr
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 072

Inlet press. bar : 1.5

Overflow quantity
min. L/h : 75
Tolerance L/h : ± 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 18.0
Tolerance bar : ± 1.0

Prestroke mm : 2.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 166.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 29.5

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance

cm³/1000S. : ± 5.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 450

guide sleeve

travel mm : 3.90

Tolerance mm : ± 0.10

Rated speed rpm : 1200

guide sleeve

travel mm : 9.60

Tolerance mm : ± 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 7.90

Tolerance mm : ± 0.10

Rated speed rpm : 800

guide sleeve

travel mm : 6.60

Tolerance mm : ± 0.20

Rated speed rpm : 350

guide sleeve

travel mm : 2.35

Tolerance mm : ± 0.15

GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 900

Del. quantity

cm³/1000 strokes : 166.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 122.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1215

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1350

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1450

LOW IDLE

control lever

position degree : 67.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 6.90

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.65
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.20
Tolerance mm : ± 0.10

Rated speed rpm : 550
rack travel mm : 11.20
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 900
rack travel mm : 13.65
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.20
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 635
rack travel mm : 12.70
Tolerance mm : ± 0.20

Pressure hPa : 365
rack travel mm : 9.65
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 106.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.00
Tolerance mm : ± 0.40
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Speed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 429

Injection pump
Pump designation : PES6P12QA720RS3256
EP type number : 9 400 087 079

Governor
Governor design. : RQV350...1300PA1096
Governor no. : 9 420 080 349

Cust. part No. : 0180746502

Customer-spec. information
Customer : MBB
Motor : OM 366 LA
Power kW : 156.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 5.10
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.65
Tolerance mm : \pm 0.15

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve

travel mm : 6.45
Tolerance mm : \pm 0.25

Rated speed rpm : 1350
guide sleeve

travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
guide sleeve

travel mm : 1.25
Tolerance mm : \pm 0.25

Rated speed rpm : 650
guide sleeve

travel mm : 4.15
Tolerance mm : \pm 0.25

Rated speed rpm : 1460
guide sleeve

travel mm : 9.55
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 1345

Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1455

Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 1570

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.65
Tolerance mm : \pm 0.15

Rated speed rpm : 250

CRT mm min. : $>$ 9.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 5.10
Tolerance mm : \pm 0.30

Rated speed rpm : 1300
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 300
rack travel mm : 0.80
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 158.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 431
Injection pump
Pump designation : PES6P120A720RS3256
EP type number : 9 400 087 080
Governor
Governor design. : RQV350...1300PA1096
: 2
Governor no. : 9 420 080 351
Cust. part No. : 0180746402

Customer-spec. information
Customer : MBB
Motor : OM 366 LA
Power KW : 141.7

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 683 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 5.10
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Speed

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 7.65
Tolerance mm : ± 0.15

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 6.45
Tolerance mm : ± 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 8.50
Tolerance mm : ± 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.25
Tolerance mm : ± 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.15
Tolerance mm : ± 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 9.55
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.70
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm	:	7.65
Tolerance mm	:	± 0.15
Rated speed rpm	:	250
CRT mm min.	:	> 9.50
Rated speed rpm	:	375

TORQUE CONTROL

Rated speed rpm	:	1000
rack travel mm	:	5.10
Tolerance mm	:	± 0.30
Rated speed rpm	:	1300
rack travel mm	:	10.80
Tolerance mm	:	± 0.10
Rated speed rpm	:	800
rack travel mm	:	10.80
Tolerance mm	:	± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	10.80
Tolerance mm	:	± 0.10
Pressure hPa	:	-
Rated speed rpm	:	500

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	340
rack travel mm	:	0.95
Tolerance mm	:	± 0.15
Pressure hPa	:	250
rack travel mm	:	0.60
Tolerance mm	:	± 0.10

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 270
Check speed 1/min	:	> 80
Check speed 1/min	:	< 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	1300
Del. quantity		
cm ³ /1000 strokes	:	141.0
Tolerance		
cm ³ /1000 strokes	:	± 1.0
Check tolerance		
cm ³ /1000s.	:	± 4.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	5.0
Check tolerance		
cm ³ /1000s.	:	9.0

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	800
Del. quantity		
cm ³ /1000 strokes	:	119.0
Tolerance		
cm ³ /1000 strokes	:	± 2.0
Check tolerance		
cm ³ /1000s.	:	± 5.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000s.	:	12.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm ³ /1000 strokes	:	70.0
Tolerance		
cm ³ /1000 strokes	:	± 1.0
Check tolerance		
cm ³ /1000s.	:	± 4.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	5.0
Check tolerance		
cm ³ /1000s.	:	9.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm ³ /1000 strokes	:	100.0
Tolerance		
cm ³ /1000 strokes	:	± 10.0
Check tolerance		
cm ³ /1000s.	:	± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 449
Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075

Governor
Governor design. : RQV350...1100PA973
Governor no. : 9 420 080 293

Cust. part No. : 3354438

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 8.3 l
Power KW : 216.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 204.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 9.5

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1400
guide sleeve
travel mm : 9.00
Tolerance mm : + 0.20

Rated speed rpm : 1150
guide sleeve
travel mm : 7.05
Tolerance mm : + 0.05

Rated speed rpm : 350
guide sleeve
travel mm : 1.60
Tolerance mm : + 0.20

Rated speed rpm : 650
guide sleeve
travel mm : 4.50
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1325

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1300
Del. quantity
cm3/1000 strokes : 204.5
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : + 4.0

control lever
position degree : 111.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1345
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.00
Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 880
rack travel mm : 2.25
Tolerance mm : \pm 0.15

Pressure hPa : 480
rack travel mm : 0.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 117.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 456

Injection pump
Pump designation : PE6P120A72ORS7126
EP type number : 0 412 626 815

Governor
Governor design. : RGV200...1050PA725
Governor no. : 0 421 813 814

Cust. part No. : 1673688

Customer-spec. information
Customer : SCANIA
Motor : DS11

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

M02

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 225

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1095
guide sleeve
travel mm : 8.30
Tolerance mm : \pm 0.10

Rated speed rpm : 225
guide sleeve
travel mm : 1.40
Tolerance mm : \pm 0.20

Rated speed rpm : 350
guide sleeve
travel mm : 2.60
Tolerance mm : \pm 0.30

Rated speed rpm : 650
guide sleeve
travel mm : 4.30
Tolerance mm : \pm 0.30

Rated speed rpm : 1215
guide sleeve
travel mm : 9.90
Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

M03

control lever
position degree : - 1
Rated speed rpm : 1200

Rack travel in mm : 10.50
Tolerance mm : \pm 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 10.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 225
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : \pm 30

Rated speed rpm : 100
CRT mm min. : $>$ 6.10

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 250
rack travel mm : 11.20
Tolerance mm : \pm 0.10

Pressure hPa : 510
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Start interlock

MO4

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 222.5
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : \pm 25.0
Check tolerance
cm³/1000S. : \pm 29.0

LOW IDLE

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 458

Injection pump
Pump designation : PE6P120A320RS3186
EF type number : 0 411 826 756

Governor
Governor design. : RQV250...1025PA657
: 9
Governor no. : 9 420 080 312

Cust. part No. : 8124324

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD102FS
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 211.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.20

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.10

Rated speed rpm : 500
guide sleeve
travel mm : 4.50
Tolerance mm : ± 0.40

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.20

Rated speed rpm : 1025
guide sleeve
travel mm : 7.55
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1080

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 211.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.10
Rated speed rpm : 1090
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 63.0
tolerance degree : ± 4.0

control lever
position degree : 8.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 5.40

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 425
rack travel mm : 2.85
Tolerance mm : \pm 0.15

Pressure hPa : 75
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700

MOB

Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 459
Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 870
Governor
Governor design. : RQ300/1050PA911-2
Governor no. : 9 420 080 313

Cust. part No. : 0160743602

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 298.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 15.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1120
guide sleeve
travel mm : 7.45
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.75
Tolerance mm : ± 0.25

Rated speed rpm : 600
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 1160
guide sleeve
travel mm : 10.00
Tolerance mm : ± 0.30

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1050

Del. quantity
cm³/1000 strokes : 280.0
Tolerance

cm³/1000 strokes : ± 1.0
Check tolerance

cm³/1000S. : ± 4.0
Spread

Tolerance
cm³/1000 strokes : 5.0
Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 40.0
tolerance degree : ± 4.0

control lever
position degree : 101.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 14.00
Rated speed rpm : 1103
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 11.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : ± 20

Rated speed rpm : 100

CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 15.40
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 15.00
Tolerance mm : ± 0.10

Rated speed rpm : 700
rack travel mm : 16.20
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1050

MEASUREMENT

Pressure hPa : 360
rack travel mm : -4.50
Tolerance mm : ± 0.10

Pressure hPa : 740
rack travel mm : -1.30
Tolerance mm : ± 0.10

Pressure hPa : 1340
rack travel mm : 0.30
Tolerance mm : ± 0.10

Pressure hPa : 1440

rack travel mm : 0.55
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 264.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 298.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 460
Injection pump
Pump designation : PES6P120A720LS7114
: 3
EP type number : 0 412 726 867
Governor
Governor design. : RQ300/1050PA911-3
Governor no. : 9 420 080 314
Cust. part No. : 0140748502

Customer spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °N/W : ± 0.75

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 13.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 226.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

Rated speed rpm :	300
Rack travel in mm :	6.00
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	13.5
Tolerance	
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S. :	+ 6.0
Spread	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1125
guide sleeve	
travel mm :	7.30
Tolerance mm :	+ 0.20

Rated speed rpm :	300
guide sleeve	
travel mm :	2.75
Tolerance mm :	+ 0.15

Rated speed rpm :	600
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	1050
guide sleeve	
travel mm :	6.50
Tolerance mm :	+ 0.10

Rated speed rpm :	1175
guide sleeve	
travel mm :	9.45
Tolerance mm :	+ 0.25

GUIDE SLEEVE POSITION

control lever	
position degree :	109
Rated speed rpm :	600
Rack travel in mm :	20.00
Tolerance mm :	+ 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	600
Aneroid pressure	
hPa :	800
Del. quantity	
cm3/1000 strokes :	226.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spread	
Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	34.0
tolerance degree :	+ 4.0

control lever	
position degree :	99.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	12.40
Rated speed rpm :	1103
Tolerance 1/min :	+ 8

rack travel mm :	4.00
Rated speed rpm :	1175
Tolerance 1/min :	+ 15

rack travel mm :	0.75
Tolerance mm :	+ 0.75
Rated speed rpm :	1300

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	+ 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : \pm 20

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 14.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 800

MEASUREMENT

Pressure hPa : 240
rack travel mm : -2.80
Tolerance mm : \pm 0.10

Pressure hPa : 560
rack travel mm : -0.80
Tolerance mm : \pm 0.10

Pressure hPa : 920
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Pressure hPa : 980

rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 219.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 239.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 461
Injection pump
Pump designation : PESSP120A720LS7174
: 0
EP type number : 0 412 725 815
Governor
Governor design. : RQ300/1050PA774-6
Governor no. : 9 420 080 315
Cust. part No. : 0140748202

Customer-spec. information
Customer : MBB
Motor : OM449 A
Power kW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

M17

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 194.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110
guide sleeve
travel mm : 6.45
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 2.15
Tolerance mm : \pm 0.25

Rated speed rpm : 600
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1170
guide sleeve
travel mm : 9.15
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 194.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 36.0
tolerance degree : \pm 4.0

control lever
position degree : 98.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.70
Rated speed rpm : 1103
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 410
Tolerance 1/min : ± 20

Rated speed rpm : 100

CRT mm min. : > 10.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.00
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 14.70
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 14.70
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 700

MEASUREMENT

Pressure hPa : 340
rack travel mm : -2.20
Tolerance mm : ± 0.10

Pressure hPa : 520
rack travel mm : -0.80
Tolerance mm : ± 0.10

Pressure hPa : 960
rack travel mm : 0.25
Tolerance mm : ± 0.05

Pressure hPa : 1040

rack travel mm : 0.45
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1300
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 211.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 463

Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075

Governor
Governor design. : RQV350...1100PA973
Governor no. : 9 420 080 317

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 8.3 L
Power KW : 186.4

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 174.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1400
guide sleeve
travel mm : 9.00
Tolerance mm : + 0.20

Rated speed rpm : 1150
guide sleeve
travel mm : 7.05
Tolerance mm : + 0.05

Rated speed rpm : 350
guide sleeve
travel mm : 1.60
Tolerance mm : + 0.20

Rated speed rpm : 650
guide sleeve
travel mm : 4.50
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1325

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : + 4.0

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1320
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.00

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.55
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 740
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Pressure hPa : 550
rack travel mm : 0.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 464
Injection pump
Pump designation : PES6P120A720LS7257
: 0
EP type number : 9 400 087 086
Governor
Governor design. : RGV300...1050PA1029
Governor no. : 9 420 080 325
Cust. part No. : 0220746202

Customer-spec. information

Customer : MBB
Motor : OM 447 LA
Power KW : 257.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

M25

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 237.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance cm ³ /1000S.	:	9.0
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Rated speed rpm	:	300
Rack travel in mm	:	5.50
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	17.0
Tolerance cm ³ /1000 strokes	:	± 3.0
Check tolerance cm ³ /1000S.	:	± 6.0
Speed Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	700
guide sleeve travel mm	:	5.45
Tolerance mm	:	± 0.25

Rated speed rpm	:	1050
guide sleeve travel mm	:	7.80
Tolerance mm	:	± 0.10

Rated speed rpm	:	300
guide sleeve travel mm	:	0.75
Tolerance mm	:	± 0.25

Rated speed rpm	:	500
guide sleeve travel mm	:	3.55
Tolerance mm	:	± 0.25

Rated speed rpm	:	1165
guide sleeve travel mm	:	9.45
Tolerance mm	:	± 0.25

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
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Rated speed rpm	:	1120
Rack travel in mm	:	16.50
Tolerance mm	:	± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	237.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Speed Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	55.0
tolerance degree	:	± 4.0

control lever position degree	:	120.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	12.00
Rated speed rpm	:	1095
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1165
Tolerance 1/min	:	± 15

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	1300

LOW IDLE

control lever position degree	:	82.0
tolerance degree	:	± 4.0

control lever position degree	:	17.0
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tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.35
Tolerance mm : \pm 0.15

Pressure hPa : 350
rack travel mm : 0.80
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 227.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 467
Injection pump
Pump designation : PES5P120A720LS7174
: 0
EF type number : 0 412 725 815
Governor
Governor design. : RQ300/1050PA774-8
Governor no. : 9 420 080 328

Cust. part No. : 0200749202

Customer-spec. information
Customer : MBB
Motor : OM 449 A
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 198.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110
guide sleeve
travel mm : 6.45
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 2.15
Tolerance mm : + 0.25

Rated speed rpm : 600
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1170
guide sleeve
travel mm : 9.15
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 198.5
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 35.0
tolerance degree : + 4.0

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1103
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

control lever
position degree : 14.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : \pm 20

Rated speed rpm : 100
CRT mm min. : $>$ 9.50

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 14.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 800
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 11.05
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 450
rack travel mm : 13.25
Tolerance mm : \pm 0.15

Pressure hPa : 270
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 194.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 472

Injection pump
Pump designation : PES6P120A720LS7114
: 3
EP type number : 0 412 726 867

Governor
Governor design. : RQV300...1050PA1041
: 1
Governor no. : 9 420 080 335

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 226.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 7.65
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.40
Tolerance mm : + 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 3.25
Tolerance mm : + 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 5.85
Tolerance mm : + 0.25

Rated speed rpm : 1210
guide sleeve
travel mm : 9.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1140

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 780

Del. quantity
cm³/1000 strokes : 226.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : + 4.0

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.20
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

control lever
position degree : 12.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.00

Rated speed rpm : 413

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 930
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 780

MEASUREMENT

Pressure hPa : 240
rack travel mm : -2.80
Tolerance mm : \pm 0.10

Pressure hPa : 560
rack travel mm : -0.80
Tolerance mm : \pm 0.10

Pressure hPa : 920
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Pressure hPa : 980
rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 239.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 473
Injection pump
Pump designation : PE6P120A320RS3178-1
EP type number : 0 411 826 764
Governor
Governor design. : RQV250... 50PA921
Governor no. : 0 421 813 796

Cust. part No. : 478162P04

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD 122 FK,FR
Power KW : 287.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 260.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.95
Tolerance mm : ± 0.15

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.5

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 985
guide sleeve
travel mm : 8.20
Tolerance mm : ± 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.90
Tolerance mm : ± 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 1060
guide sleeve
travel mm : 9.60
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1000

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 260.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 121.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 13.20
Rated speed rpm : 995
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1085
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 10.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.95
Tolerance mm : \pm 0.15

Rated speed rpm : 100
CRT mm min. : $>$ 6.50

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.25
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.25
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 865
rack travel mm : 3.80
Tolerance mm : \pm 0.10

Pressure hPa : 100
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000s. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 400 087 475

Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087

Governor
Governor design. : RQV300...950PA1029
Governor no. : 9 420 080 360

Cust. part No. : 0240742602

Customer-spec. information

Customer : MBB
Motor : OM 449 LA
Power KW : 220.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 5.45
Tolerance mm : + 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.80
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.55
Tolerance mm : + 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.45
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1300
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : + 4.0

control lever
position degree : 117.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.50
Rated speed rpm : 985
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1125
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

control lever
position degree : 18.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 9.00
Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 2.45
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 1.10
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 9 400 087 476
Injection pump
Pump designation : PES6P120A720LS7181
: 0
EP type number : 0 412 726 870
Governor
Governor design. : RQV300...1050PA1055
Governor no. : 9 420 080 337
Cust. part No. : 0190741502

Customer-spec. information

Customer : MBB
Motor : OM447LA
Power KW : 301.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 15.15
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 266.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 7.65
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.40
Tolerance mm : + 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 3.25
Tolerance mm : + 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 5.85
Tolerance mm : + 0.25

Rated speed rpm : 1210
guide sleeve
travel mm : 9.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1140

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 266.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : + 4.0

control lever
position degree : 115.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 15.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 600

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 820
rack travel mm : 3.85
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 1.30
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm3/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 477

Injection pump
Pump designation : PES6P120A720RS3256
EP type number : 9 400 087 080

Governor
Governor design. : RQV350...1300PA1098
Governor no. : 9 420 080 353

Cust. part No. : 0240747202

Customer-spec. information
Customer : MBB
Motor : OM 366 LA
Power KW : 125.1

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 10.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 141.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.65

Tolerance mm : ± 0.15

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 6.45
Tolerance mm : ± 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 8.50
Tolerance mm : ± 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.25
Tolerance mm : ± 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.15
Tolerance mm : ± 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 9.55
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.70
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm	:	7.65
Tolerance mm	:	+ 0.15
Rated speed rpm	:	250
CRT mm min.	:	> 9.50
Rated speed rpm	:	375

TORQUE CONTROL

Rated speed rpm	:	1300
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10
Rated speed rpm	:	800
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10
Rated speed rpm	:	1000
rack travel mm	:	5.10
Tolerance mm	:	+ 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10
Pressure hPa	:	-
Rated speed rpm	:	500

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	420
rack travel mm	:	0.70
Tolerance mm	:	+ 0.10
Pressure hPa	:	350
rack travel mm	:	0.40
Tolerance mm	:	+ 0.10

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 270
Check speed 1/min	:	> 80
Check speed 1/min	:	< 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	800
Del. quantity		
cm3/1000 strokes	:	119.0
Tolerance		
cm3/1000 strokes	:	+ 2.0
Check tolerance		
cm3/1000S.	:	+ 5.0
Speed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	1000
Del. quantity		
cm3/1000 strokes	:	18.5
Tolerance		
cm3/1000 strokes	:	+ 1.5
Check tolerance		
cm3/1000S.	:	+ 4.5
Speed		
Tolerance		
cm3/1000 strokes	:	2.0
Check tolerance		
cm3/1000S.	:	3.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	70.0
Tolerance		
cm3/1000 strokes	:	+ 1.0
Check tolerance		
cm3/1000S.	:	+ 4.0
Speed		
Tolerance		
cm3/1000 strokes	:	5.0
Check tolerance		
cm3/1000S.	:	9.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes	:	100.0
Tolerance		
cm3/1000 strokes	:	+ 10.0
Check tolerance		
cm3/1000S.	:	+ 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 478

Injection pump
Pump designation : PES6P120A720RS3256
EP type number : 9 400 087 080

Governor
Governor design. : RQV350...1300PA1080
Governor no. : 9 420 080 339

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 366 LA
Power KW : 139.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
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tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 5.10
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 7.65
Tolerance mm : ± 0.15

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance

cm³/1000 strokes : 8.0
Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 6.45
Tolerance mm : ± 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 8.50
Tolerance mm : ± 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.25
Tolerance mm : ± 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.15
Tolerance mm : ± 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 9.55
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.70
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm	:	7.65
Tolerance mm	:	+ 0.15
Rated speed rpm	:	250
CRT mm min.	:	> 9.50
Rated speed rpm	:	375

TORQUE CONTROL

Rated speed rpm	:	1000
rack travel mm	:	5.10
Tolerance mm	:	+ 0.30
Rated speed rpm	:	1300
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10
Rated speed rpm	:	800
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	10.80
Tolerance mm	:	+ 0.10
Pressure hPa	:	-
Rated speed rpm	:	500

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	340
rack travel mm	:	0.95
Tolerance mm	:	+ 0.15
Pressure hPa	:	250
rack travel mm	:	0.60
Tolerance mm	:	+ 0.10

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 270
Check speed 1/min	:	> 80
Check speed 1/min	:	< 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	1300
Del. quantity		
cm ³ /1000 strokes	:	141.0
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000s.	:	+ 4.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000s.	:	12.0

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	800
Del. quantity		
cm ³ /1000 strokes	:	119.0
Tolerance		
cm ³ /1000 strokes	:	+ 2.0
Check tolerance		
cm ³ /1000s.	:	+ 5.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000s.	:	12.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm ³ /1000 strokes	:	70.0
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000s.	:	+ 4.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000s.	:	12.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm ³ /1000 strokes	:	100.0
Tolerance		
cm ³ /1000 strokes	:	+ 10.0
Check tolerance		
cm ³ /1000s.	:	+ 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet